

Exhibit E

West Nile Virus - AF206518

Met	Ser	Lys	Lys	Pro	Gly	Gly	Pro	Gly	Lys	Ser	Arg	Ala	Val	Asn	Met
1				5				10						15	
Leu	Lys	Arg	Gly	Met	Pro	Arg	Val	Leu	Ser	Leu	Ile	Gly	Leu	Lys	Arg
			20					25					30		
Ala	Met	Leu	Ser	Leu	Ile	Asp	Gly	Lys	Gly	Pro	Ile	Arg	Phe	Val	Leu
		35					40					45			
Ala	Leu	Leu	Ala	Phe	Phe	Arg	Phe	Thr	Ala	Ile	Ala	Pro	Thr	Arg	Ala
	50					55					60				
Val	Leu	Asp	Arg	Trp	Arg	Gly	Val	Asn	Lys	Gln	Thr	Ala	Met	Lys	His
65					70				75					80	
Leu	Leu	Ser	Phe	Lys	Lys	Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn
				85					90					95	
Arg	Arg	Ser	Ser	Lys	Gln	Lys	Lys	Arg	Gly	Gly	Lys	Thr	Gly	Ile	Ala
			100					105					110		
Val	Met	Ile	Gly	Leu	Ile	Ala	Ser	Val	Gly	Ala	Val	Thr	Leu	Ser	Asn
		115					120					125			
Phe	Gln	Gly	Lys	Val	Met	Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp
	130					135					140				
Val	Ile	Thr	Ile	Pro	Thr	Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg
145					150					155				160	
Ala	Met	Asp	Val	Gly	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu	Cys
				165					170					175	
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys
			180					185					190		
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg
		195					200					205			
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu
	210					215					220				
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala
225					230					235				240	
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly
				245					250					255	
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr
		260						265					270		
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala
		275					280					285			
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly
	290					295					300				
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys
305					310					315				320	
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met
				325					330					335	
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu
			340					345					350		
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly
		355					360					365			
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln
	370					375					380				
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	LEU	Phe	Gly	Lys
385					390					395				400	
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile
				405					410					415	
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe
			420					425					430		

Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln
		435					440					445			
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro
	450					455					460				
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys
465				470						475					480
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val
				485					490					495	
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn
			500					505					510		
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr
		515					520					525			
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala
	530					535					540				
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile
545					550					555					560
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu
				565					570					575	
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr
			580					585					590		
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	ALA	Asp	Thr
		595					600					605			
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly
	610					615					620				
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr
625					630					635					640
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Met	Ala	Thr
				645					650					655	
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser
			660					665					670		
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His
	675						680					685			
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly
	690					695					700				
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	LYS	Ala	Val	His	Gln	Val	Phe
				725					730					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
		740						745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
	755						760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770					775					780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val
				805					810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
		835					840					845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr



Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile  
 1345 1350 1355 1360  
 Leu Ala Ala Gly Leu Ile Ala Cys Asp Pro Asn Arg Lys Arg Gly Trp  
 1365 1370 1375  
 Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val  
 1380 1385 1390  
 Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr  
 1395 1400 1405  
 Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr  
 1410 1415 1420  
 Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala  
 1425 1430 1435 1440  
 Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp  
 1445 1450 1455  
 Gly Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp  
 1460 1465 1470  
 Met Leu Arg Met Val Cys Leu Ala Ile Ser Ala Tyr Thr Pro Trp Ala  
 1475 1480 1485  
 Ile Leu Pro Ser Val Val Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys  
 1490 1495 1500  
 Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys  
 1505 1510 1515 1520  
 Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu  
 1525 1530 1535  
 Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His  
 1540 1545 1550  
 Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly  
 1555 1560 1565  
 Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr  
 1570 1575 1580  
 Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val  
 1585 1590 1595 1600  
 Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr  
 1605 1610 1615  
 Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr  
 1620 1625 1630  
 Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln  
 1700 1705 1710  
 Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala  
 1715 1720 1725  
 Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu  
 1730 1735 1740  
 Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn  
 1745 1750 1755 1760  
 Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met  
 1765 1770 1775  
 Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala  
 1780 1785 1790  
 His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr

5

Leu Ala Val Phe Leu Ile Cys Val Met Thr Leu Val Ser Ala Val Ala  
 2260 2265 2270  
 Ala Asn Glu Met Gly Trp Leu Asp Lys Thr Lys Ser Asp Ile Ser Ser  
 2275 2280 2285  
 Leu Phe Gly Gln Arg Ile Glu Val Lys Glu Asn Phe Ser Met Gly Glu  
 2290 2295 2300  
 Phe Leu Leu Asp Leu Arg Pro Ala Thr Ala Trp Ser Leu Tyr Ala Val  
 2305 2310 2315 2320  
 Thr Thr Ala Val Leu Thr Pro Leu Leu Lys His Leu Ile Thr Ser Asp  
 2325 2330 2335  
 Tyr Ile Asn Thr Ser Leu Thr Ser Ile Asn Val Gln Ala Ser Ala Leu  
 2340 2345 2350  
 Phe Thr Leu Ala Arg Gly Phe Pro Phe Val Asp Val Gly Val Ser Ala  
 2355 2360 2365  
 Leu Leu Leu Ala Ala Gly Cys Trp Gly Gln Val Thr Leu Thr Val Thr  
 2370 2375 2380  
 Val Thr Ala Ala Thr Leu Leu Phe Cys His Tyr Ala Tyr Met Val Pro  
 2385 2390 2395 2400  
 Gly Trp Gln Ala Glu Ala Met Arg Ser Ala Gln Arg Arg Thr Ala Ala  
 2405 2410 2415  
 Gly Ile Met Lys Asn Ala Val Val Asp Gly Ile Val Ala Thr Asp Val  
 2420 2425 2430  
 Pro Glu Leu Glu Arg Thr Thr Pro Ile Met Gln Lys Lys Val Gly Gln  
 2435 2440 2445  
 Ile Met Leu Ile Leu Val Ser Leu Ala Ala Val Val Val Asn Pro Ser  
 2450 2455 2460  
 Val Lys Thr Val Arg Glu Ala Gly Ile Leu Ile Thr Ala Ala Ala Val  
 2465 2470 2475 2480  
 Thr Leu Trp Glu Asn Gly Ala Ser Ser Val Trp Asn Ala Thr Thr Ala  
 2485 2490 2495  
 Ile Gly Leu Cys His Ile Met Arg Gly Gly Trp Leu Ser Cys Leu Ser  
 2500 2505 2510  
 Ile Thr Trp Thr Leu Ile Lys Asn Met Glu Lys Pro Gly Leu Lys Arg  
 2515 2520 2525  
 Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu  
 2530 2535 2540  
 Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile  
 2545 2550 2555 2560  
 Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn  
 2565 2570 2575  
 Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 2580 2585 2590  
 Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 2595 2600 2605  
 Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 2610 2615 2620  
 Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
 2625 2630 2635 2640  
 Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser  
 2645 2650 2655  
 Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu  
 2660 2665 2670  
 Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg  
 2675 2680 2685  
 Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro  
 2690 2695 2700  
 Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile

2705					2710					2715				2720
Glu	Lys	Met	Glu	Leu	Leu	Gln	Arg	Arg	Tyr	Gly	Gly	Gly	Leu	Val Arg
				2725					2730					2735
Asn	Pro	Leu	Ser	Arg	Asn	Ser	Thr	His	Glu	Met	Tyr	Trp	Val	Ser Arg
			2740					2745					2750	
Ala	Ser	Gly	Asn	Val	Val	His	Ser	Val	Asn	Met	Thr	Ser	Gln	Val Leu
		2755					2760				2765			
Leu	Gly	Arg	Met	Glu	Lys	Arg	Thr	Trp	Lys	Gly	Pro	Gln	Tyr	Glu Glu
	2770				2775						2780			
Asp	Val	Asn	Leu	Gly	Ser	Gly	Thr	Arg	Ala	Val	Gly	Lys	Pro	Leu Leu
2785				2790					2795					2800
Asn	Ser	Asp	Thr	Ser	Lys	Ile	Lys	Asn	Arg	Ile	Glu	Arg	Leu	Arg Arg
			2805					2810					2815	
Glu	Tyr	Ser	Ser	Thr	Trp	His	His	Asp	Glu	Asn	His	Pro	Tyr	Arg Thr
		2820					2825					2830		
Trp	Asn	Tyr	His	Gly	Ser	Tyr	Asp	Val	Lys	Pro	Thr	Gly	Ser	Ala Ser
	2835						2840					2845		
Ser	Leu	Val	Asn	Gly	Val	Val	Arg	Leu	Leu	Ser	Lys	Pro	Trp	Asp Thr
	2850				2855						2860			
Ile	Thr	Asn	Val	Thr	Thr	Met	Ala	Met	Thr	Asp	Thr	Thr	Pro	Phe Gly
2865				2870					2875					2880
Gln	Gln	Arg	Val	Phe	Lys	Glu	Lys	Val	Asp	Thr	Lys	Ala	Pro	Glu Pro
			2885					2890					2895	
Pro	Glu	Gly	Val	Lys	Tyr	Val	Leu	Asn	Glu	Thr	Thr	Asn	Trp	Leu Trp
	2900						2905					2910		
Ala	Phe	Leu	Ala	Arg	Glu	Lys	Arg	Pro	Arg	Met	Cys	Ser	Arg	Glu Glu
	2915						2920					2925		
Phe	Ile	Arg	Lys	Val	Asn	Ser	Asn	Ala	Ala	Leu	Gly	Ala	Met	Phe Glu
	2930				2935						2940			
Glu	Gln	Asn	Gln	Trp	Arg	Ser	Ala	Arg	Glu	Ala	Val	Glu	Asp	Pro Lys
2945				2950					2955					2960
Phe	Trp	Glu	Met	Val	Asp	Glu	Glu	Arg	Glu	Ala	His	Leu	Arg	Gly Glu
			2965					2970					2975	
Cys	His	Thr	Cys	Ile	Tyr	Asn	Met	Met	Gly	Lys	Arg	Glu	Lys	Lys Pro
			2980					2985				2990		
Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Phe	Met Trp
	2995						3000					3005		
Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn Glu
	3010					3015					3020			
Asp	His	Trp	Leu	Gly	Arg	Lys	Asn	Ser	Gly	Gly	Gly	Val	Glu	Gly Leu
3025				3030					3035					3040
Gly	Leu	Gln	Lys	Leu	Gly	Tyr	Ile	Leu	Arg	Glu	Val	Gly	Thr	Arg Pro
			3045					3050				3055		
Gly	Gly	Lys	Ile	Tyr	Ala	Asp	Asp	Thr	Ala	Gly	Trp	Asp	Thr	Arg Ile
	3060							3065				3070		
Thr	Arg	Ala	Asp	Leu	Glu	Asn	Glu	Ala	Lys	Val	Leu	Glu	Leu	Leu Asp
	3075						3080					3085		
Gly	Glu	His	Arg	Arg	Leu	Ala	Arg	Ala	Ile	Ile	Glu	Leu	Thr	Tyr Arg
	3090					3095					3100			
His	Lys	Val	Val	Lys	Val	Met	Arg	Pro	Ala	Ala	Asp	Gly	Arg	Thr Val
3105				3110					3115					3120
Met	Asp	Val	Ile	Ser	Arg	Glu	Asp	Gln	Arg	Gly	Ser	Gly	Gln	Val Val
			3125					3130					3135	
Thr	Tyr	Ala	Leu	Asn	Thr	Phe	Thr	Asn	Leu	Ala	Val	Gln	Leu	Val Arg
	3140						3145					3150		
Met	Met	Glu	Gly	Glu	Gly	Val	Ile	Gly	Pro	Asp	Asp	Val	Glu	Lys Leu
	3155					3160						3165		

Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly  
 3170 3175 3180  
 Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val  
 3185 3190 3195 3200  
 Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala  
 3205 3210 3215  
 Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly  
 3220 3225 3230  
 Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu  
 3235 3240 3245  
 Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln  
 3250 3255 3260  
 Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn  
 3265 3270 3275 3280  
 Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu  
 3285 3290 3295  
 Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile  
 3300 3305 3310  
 Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp  
 3315 3320 3325  
 Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu  
 3330 3335 3340  
 Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys  
 3345 3350 3355 3360  
 Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu  
 3365 3370 3375  
 Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp  
 3380 3385 3390  
 Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly  
 3395 3400 3405  
 Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp  
 3410 3415 3420  
 Thr Thr Leu Val Glu Asp Thr Val Leu  
 3425 3430

**West Nile Virus - AF260967**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met  
 1 5 10 15  
 Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg  
 20 25 30  
 Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu  
 35 40 45  
 Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala  
 50 55 60  
 Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His  
 65 70 75 80  
 Leu Leu Ser Phe Lys Lys Glu Leu Gly Thr Leu Thr Ser Ala Ile Asn  
 85 90 95  
 Arg Arg Ser Ser Lys Gln Lys Lys Arg Gly Gly Lys Thr Gly Ile Ala  
 100 105 110  
 Val Met Ile Gly Leu Ile Ala Ser Val Gly Ala Val Thr Leu Ser Asn  
 115 120 125  
 Phe Gln Gly Lys Val Met Met Thr Val Asn Ala Thr Asp Val Thr Asp  
 130 135 140  
 Val Ile Thr Ile Pro Thr Ala Ala Gly Lys Asn Leu Cys Ile Val Arg



145					150					155				160
Ala	Met	Asp	Val	Gly	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu
				165					170					175
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp
				180					185				190	
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr
				195				200				205		
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly
	210					215					220			
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys
225					230					235				240
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro
				245					250				255	
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn
			260					265				270		
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro
	275						280					285		
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu
	290					295					300			
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser
305					310					315				320
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met
				325					330				335	
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr
			340					345				350		
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met
	355						360					365		
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg
	370					375					380			
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly
385					390				395					400
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala
				405					410				415	
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile
			420					425				430		
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr
	435						440				445			
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala
	450					455					460			
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp
465					470				475					480
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr
				485				490					495	
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu
			500					505				510		
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu
	515						520					525		
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile
	530					535					540			
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala
545					550				555					560
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His
				565				570					575	
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr
			580					585				590		
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	<b>ALA</b>	Asp
	595						600					605		

Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly
610						615					620				
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr
625					630					635					640
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr
				645					650					655	
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser
			660					665					670		
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His
	675						680					685			
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly
	690					695					700				
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	<b>LYS</b>	Ala	Val	His	Gln	Val	Phe
				725					<b>730</b>					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
	755						760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770					775					780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val
				805					810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
	835					840						845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr
				885					890					895	
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
			900					905					910		
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly
	915						920					925			
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu
	930					935					940				
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu
945					950					955					960
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly
				965					970					975	
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp
			980					985					990		
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu
	995						1000					1005			
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly
	1010					1015					1020				
Asp	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly
1025					1030					1035					1040
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln
				1045					1050					1055	
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro

			1060					1065				1070			
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala
			1075					1080				1085			
Thr	Arg	Thr	Thr	Thr	Glu	Ser	Gly	Lys	Leu	Ile	Thr	Asp	Trp	Cys	Cys
			1090					1095				1100			
Arg	Ser	Cys	Thr	Leu	Pro	Pro	Leu	Arg	Tyr	Gln	Thr	Asp	Ser	Gly	Cys
1105						1110					1115				1120
Trp	Tyr	Gly	Met	Glu	Ile	Arg	Pro	Gln	Arg	His	Asp	Glu	Lys	Thr	Leu
				1125					1130						1135
Val	Gln	Ser	Gln	Val	Asn	Ala	Tyr	Asn	Ala	Asp	Met	Ile	Asp	Pro	Phe
			1140						1145						1150
Gln	Leu	Gly	Leu	Leu	Val	Val	Phe	Leu	Ala	Thr	Gln	Glu	Val	Leu	Arg
			1155					1160				1165			
Lys	Arg	Trp	Thr	Ala	Lys	Ile	Ser	Met	Pro	Ala	Ile	Leu	Ile	Ala	Leu
			1170				1175					1180			
Leu	Val	Leu	Val	Phe	Gly	Gly	Ile	Thr	Tyr	Thr	Asp	Val	Leu	Arg	Tyr
1185					1190						1195				1200
Val	Ile	Leu	Val	Gly	Ala	Ala	Phe	Ala	Glu	Ser	Asn	Ser	Gly	Gly	Asp
				1205					1210						1215
Val	Val	His	Leu	Ala	Leu	Met	Ala	Thr	Phe	Lys	Ile	Gln	Pro	Val	Phe
			1220					1225					1230		
Met	Val	Ala	Ser	Phe	Leu	Lys	Ala	Arg	Trp	Thr	Asn	Gln	Glu	Asn	Ile
			1235					1240				1245			
Leu	Leu	Met	Leu	Ala	Ala	Ala	Phe	Phe	Gln	Met	Ala	Tyr	His	Asp	Ala
			1250			1255					1260				
Arg	Gln	Ile	Leu	Leu	Trp	Glu	Ile	Pro	Asp	Val	Leu	Asn	Ser	Leu	Ala
1265					1270						1275				1280
Val	Ala	Trp	Met	Ile	Leu	Arg	Ala	Ile	Thr	Phe	Thr	Thr	Thr	Ser	Asn
				1285					1290						1295
Val	Val	Val	Pro	Leu	Leu	Ala	Leu	Leu	Thr	Pro	Gly	Leu	Arg	Cys	Leu
			1300					1305				1310			
Asn	Leu	Asp	Val	Tyr	Arg	Ile	Leu	Leu	Leu	Met	Val	Gly	Ile	Gly	Ser
			1315				1320					1325			
Leu	Ile	Arg	Glu	Lys	Arg	Ser	Ala	Ala	Ala	Lys	Lys	Lys	Gly	Ala	Ser
			1330			1335					1340				
Leu	Leu	Cys	Leu	Ala	Leu	Ala	Ser	Thr	Gly	Leu	Phe	Asn	Pro	Met	Ile
1345				1350						1355					1360
Leu	Ala	Ala	Gly	Leu	Ile	Ala	Cys	Asp	Pro	Asn	Arg	Lys	Arg	Gly	Trp
			1365					1370						1375	
Pro	Ala	Thr	Glu	Val	Met	Thr	Ala	Val	Gly	Leu	Met	Phe	Ala	Ile	Val
			1380					1385				1390			
Gly	Gly	Leu	Ala	Glu	Leu	Asp	Ile	Asp	Ser	Met	Ala	Ile	Pro	Met	Thr
			1395				1400					1405			
Ile	Ala	Gly	Leu	Met	Phe	Ala	Ala	Phe	Val	Ile	Ser	Gly	Lys	Ser	Thr
			1410			1415					1420				
Asp	Met	Trp	Ile	Glu	Arg	Thr	Ala	Asp	Ile	Ser	Trp	Glu	Ser	Asp	Ala
1425				1430						1435					1440
Glu	Ile	Thr	Gly	Ser	Ser	Glu	Arg	Val	Asp	Val	Arg	Leu	Asp	Asp	Asp
			1445					1450						1455	
Gly	Asn	Phe	Gln	Leu	Met	Asn	Asp	Pro	Gly	Ala	Pro	Trp	Lys	Ile	Trp
			1460				1465					1470			
Met	Leu	Arg	Met	Val	Cys	Leu	Ala	Ile	Ser	Ala	Tyr	Thr	Pro	Trp	Ala
			1475				1480					1485			
Ile	Leu	Pro	Ser	Val	Val	Gly	Phe	Trp	Ile	Thr	Leu	Gln	Tyr	Thr	Lys
			1490			1495					1500				
Arg	Gly	Gly	Val	Leu	Trp	Asp	Thr	Pro	Ser	Pro	Lys	Glu	Tyr	Lys	Lys
1505				1510						1515					1520

Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu  
 1525 1530 1535  
 Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His  
 1540 1545 1550  
 Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly  
 1555 1560 1565  
 Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr  
 1570 1575 1580  
 Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val  
 1585 1590 1595 1600  
 Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr  
 1605 1610 1615  
 Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr  
 1620 1625 1630  
 Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln  
 1700 1705 1710  
 Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala  
 1715 1720 1725  
 Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu  
 1730 1735 1740  
 Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn  
 1745 1750 1755 1760  
 Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met  
 1765 1770 1775  
 Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala  
 1780 1785 1790  
 His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr  
 1795 1800 1805  
 Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro  
 1810 1815 1820  
 Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp  
 1825 1830 1835 1840  
 Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp  
 1845 1850 1855  
 Ile Thr Glu Tyr Thr Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys  
 1860 1865 1870  
 Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val  
 1875 1880 1885  
 Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys  
 1890 1895 1900  
 Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly  
 1905 1910 1915 1920  
 Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys  
 1925 1930 1935  
 Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro  
 1940 1945 1950  
 Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly  
 1955 1960 1965  
 Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr

1970	1975	1980
Asn Glu Asp Asp Ser	Asn Phe Ala His Trp	Thr Glu Ala Arg Ile Met
1985	1990	1995
Leu Asp Asn Ile Asn Met	Pro Asn Gly Leu Ile Ala Gln Phe Tyr Gln	2000
2005	2010	2015
Pro Glu Arg Glu Lys Val Tyr Thr Met Asp Gly Glu Tyr Arg Leu Arg		
2020	2025	2030
Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu		
2035	2040	2045
Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Pro Tyr His		
2050	2055	2060
Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu		
2065	2070	2075
Asp Asn Asn Glu Val Glu Val Ile Thr Lys Leu Gly Glu Arg Lys Ile		
2085	2090	2095
Leu Arg Pro Arg Trp Ile Asp Ala Arg Val Tyr Ser Asp His Gln Ala		
2100	2105	2110
Leu Lys Ala Phe Lys Asp Phe Ala Ser Gly Lys Arg Ser Gln Ile Gly		
2115	2120	2125
Leu Ile Glu Val Leu Gly Lys Met Pro Glu His Phe Met Gly Lys Thr		
2130	2135	2140
Trp Glu Ala Leu Asp Thr Met Tyr Val Val Ala Thr Ala Glu Lys Gly		
2145	2150	2155
Gly Arg Ala His Arg Met Ala Leu Glu Glu Leu Pro Asp Ala Leu Gln		
2165	2170	2175
Thr Ile Ala Leu Ile Ala Leu Leu Ser Val Met Thr Met Gly Val Phe		
2180	2185	2190
Phe Leu Leu Met Gln Arg Lys Gly Ile Gly Lys Ile Gly Leu Gly Gly		
2195	2200	2205
Ala Val Leu Gly Val Ala Thr Phe Phe Cys Trp Met Ala Glu Val Pro		
2210	2215	2220
Gly Thr Lys Ile Ala Gly Met Leu Leu Leu Ser Leu Leu Leu Met Ile		
2225	2230	2235
Val Leu Ile Pro Glu Pro Glu Lys Gln Arg Ser Gln Thr Asp Asn Gln		
2245	2250	2255
Leu Ala Val Phe Leu Ile Cys Val Met Thr Leu Val Ser Ala Val Ala		
2260	2265	2270
Ala Asn Glu Met Gly Trp Leu Asp Lys Thr Lys Ser Asp Ile Ser Ser		
2275	2280	2285
Leu Phe Gly Gln Arg Ile Glu Val Lys Glu Asn Phe Ser Met Gly Glu		
2290	2295	2300
Phe Leu Leu Asp Leu Arg Pro Ala Thr Ala Trp Ser Leu Tyr Ala Val		
2305	2310	2315
Thr Thr Ala Val Leu Thr Pro Leu Leu Lys His Leu Ile Thr Ser Asp		
2325	2330	2335
Tyr Ile Asn Thr Ser Leu Thr Ser Ile Asn Val Gln Ala Ser Ala Leu		
2340	2345	2350
Phe Thr Leu Ala Arg Gly Phe Pro Phe Val Asp Val Gly Val Ser Ala		
2355	2360	2365
Leu Leu Leu Ala Ala Gly Cys Trp Gly Gln Val Thr Leu Thr Val Thr		
2370	2375	2380
Val Thr Ala Ala Thr Leu Leu Phe Cys His Tyr Ala Tyr Met Val Pro		
2385	2390	2395
Gly Trp Gln Ala Glu Ala Met Arg Ser Ala Gln Arg Arg Thr Ala Ala		
2405	2410	2415
Gly Ile Met Lys Asn Ala Val Val Asp Gly Ile Val Ala Thr Asp Val		
2420	2425	2430

Pro Glu Leu Glu Arg Ala Thr Pro Ile Met Gln Lys Lys Val Gly Gln  
 2435 2440 2445  
 Ile Met Leu Ile Leu Val Ser Leu Ala Ala Val Val Val Asn Pro Ser  
 2450 2455 2460  
 Val Lys Thr Val Arg Glu Ala Gly Ile Leu Ile Thr Ala Ala Ala Val  
 2465 2470 2475 2480  
 Thr Leu Trp Glu Asn Gly Ala Ser Ser Val Trp Asn Ala Thr Thr Ala  
 2485 2490 2495  
 Ile Gly Leu Cys His Ile Met Arg Gly Gly Trp Leu Ser Cys Leu Ser  
 2500 2505 2510  
 Ile Thr Trp Thr Leu Ile Lys Asn Met Glu Lys Pro Gly Leu Lys Arg  
 2515 2520 2525  
 Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu  
 2530 2535 2540  
 Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile  
 2545 2550 2555 2560  
 Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn  
 2565 2570 2575  
 Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 2580 2585 2590  
 Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 2595 2600 2605  
 Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 2610 2615 2620  
 Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
 2625 2630 2635 2640  
 Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser  
 2645 2650 2655  
 Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu  
 2660 2665 2670  
 Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg  
 2675 2680 2685  
 Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro  
 2690 2695 2700  
 Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile  
 2705 2710 2715 2720  
 Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg  
 2725 2730 2735  
 Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg  
 2740 2745 2750  
 Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu  
 2755 2760 2765  
 Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu  
 2770 2775 2780  
 Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu  
 2785 2790 2795 2800  
 Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg  
 2805 2810 2815  
 Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr  
 2820 2825 2830  
 Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser  
 2835 2840 2845  
 Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr  
 2850 2855 2860  
 Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly  
 2865 2870 2875 2880  
 Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro

						2885			2890				2895			
Pro	Glu	Gly	Val	Lys	Tyr	Val	Leu	Asn	Glu	Thr	Thr	Asn	Trp	Leu	Trp	
						2900			2905				2910			
Ala	Phe	Leu	Ala	Arg	Glu	Lys	Arg	Pro	Arg	Met	Cys	Ser	Arg	Glu	Glu	
						2915			2920				2925			
Phe	Ile	Arg	Lys	Val	Asn	Ser	Asn	Ala	Ala	Leu	Gly	Ala	Met	Phe	Glu	
						2930			2935				2940			
Glu	Gln	Asn	Gln	Trp	Arg	Ser	Ala	Arg	Glu	Ala	Val	Glu	Asp	Pro	Lys	
2945						2950			2955				2960			
Phe	Trp	Glu	Met	Val	Asp	Glu	Glu	Arg	Glu	Ala	His	Leu	Arg	Gly	Glu	
						2965			2970				2975			
Cys	His	Thr	Cys	Ile	Tyr	Asn	Met	Met	Gly	Lys	Arg	Glu	Lys	Lys	Pro	
						2980			2985				2990			
Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Phe	Met	Trp	
						2995			3000				3005			
Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn	Glu	
						3010			3015				3020			
Asp	His	Trp	Leu	Gly	Arg	Lys	Asn	Ser	Gly	Gly	Gly	Val	Glu	Gly	Leu	
3025						3030			3035				3040			
Gly	Leu	Gln	Lys	Leu	Gly	Tyr	Ile	Leu	Arg	Glu	Val	Gly	Thr	Arg	Pro	
						3045			3050				3055			
Gly	Gly	Lys	Ile	Tyr	Ala	Asp	Asp	Thr	Ala	Gly	Trp	Asp	Thr	Arg	Ile	
						3060			3065				3070			
Thr	Arg	Ala	Asp	Leu	Glu	Asn	Glu	Ala	Lys	Val	Leu	Glu	Leu	Leu	Asp	
						3075			3080				3085			
Gly	Glu	His	Arg	Arg	Leu	Ala	Arg	Ala	Ile	Ile	Glu	Leu	Thr	Tyr	Arg	
3090						3095			3100							
His	Lys	Val	Val	Lys	Val	Met	Arg	Pro	Ala	Ala	Asp	Gly	Arg	Thr	Val	
3105						3110			3115				3120			
Met	Asp	Val	Ile	Ser	Arg	Glu	Asp	Gln	Arg	Gly	Ser	Gly	Gln	Val	Val	
						3125			3130				3135			
Thr	Tyr	Ala	Leu	Asn	Thr	Phe	Thr	Asn	Leu	Ala	Val	Gln	Leu	Val	Arg	
						3140			3145				3150			
Met	Met	Glu	Gly	Glu	Gly	Val	Ile	Gly	Pro	Asp	Asp	Val	Glu	Lys	Leu	
						3155			3160				3165			
Thr	Lys	Gly	Lys	Gly	Pro	Lys	Val	Arg	Thr	Trp	Leu	Phe	Glu	Asn	Gly	
3170						3175			3180							
Glu	Glu	Arg	Leu	Ser	Arg	Met	Ala	Val	Ser	Gly	Asp	Asp	Cys	Val	Val	
3185						3190			3195				3200			
Lys	Pro	Leu	Asp	Asp	Arg	Phe	Ala	Thr	Ser	Leu	His	Phe	Leu	Asn	Ala	
						3205			3210				3215			
Met	Ser	Lys	Val	Arg	Lys	Asp	Ile	Gln	Glu	Trp	Lys	Pro	Ser	Thr	Gly	
						3220			3225				3230			
Trp	Tyr	Asp	Trp	Gln	Gln	Val	Pro	Phe	Cys	Ser	Asn	His	Phe	Thr	Glu	
						3235			3240				3245			
Leu	Ile	Met	Lys	Asp	Gly	Arg	Thr	Leu	Val	Val	Pro	Cys	Arg	Gly	Gln	
3250						3255			3260							
Asp	Glu	Leu	Val	Gly	Arg	Ala	Arg	Ile	Ser	Pro	Gly	Ala	Gly	Trp	Asn	
3265						3270			3275				3280			
Val	Arg	Asp	Thr	Ala	Cys	Leu	Ala	Lys	Ser	Tyr	Ala	Gln	Met	Trp	Leu	
						3285			3290				3295			
Leu	Leu	Tyr	Phe	His	Arg	Arg	Asp	Leu	Arg	Leu	Met	Ala	Asn	Ala	Ile	
						3300			3305				3310			
Cys	Ser	Ala	Val	Pro	Val	Asn	Trp	Val	Pro	Thr	Gly					

Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys	
3345	3350 3355 3360
Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu	
	3365 3370 3375
Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp	
	3380 3385 3390
Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly	
	3395 3400 3405
Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp	
	3410 3415 3420
Thr Thr Leu Val Glu Asp Thr Val Leu	
3425	3430

**West Nile Virus - AF260968**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met	
1	5 10 15
Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg	
	20 25 30
Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu	
	35 40 45
Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala	
	50 55 60
Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His	
65	70 75 80
Leu Leu Ser Phe Lys Lys Glu Leu Gly Thr Leu Thr Ser Ala Ile Asn	
	85 90 95
Arg Arg Ser Ser Lys Gln Lys Lys Arg Gly Gly Lys Thr Gly Ile Ala	
	100 105 110
Val Met Ile Gly Leu Ile Ala Ser Val Gly Ala Val Thr Leu Ser Asn	
	115 120 125
Phe Gln Gly Lys Val Met Met Thr Val Asn Ala Thr Asp Val Thr Asp	
	130 135 140
Val Ile Thr Ile Pro Thr Ala Ala Gly Lys Asn Leu Cys Ile Val Arg	
145	150 155 160
Ala Met Asp Val Gly Tyr Met Cys Asp Asp Thr Ile Thr Tyr Glu Cys	
	165 170 175
Pro Val Leu Ser Ala Gly Asn Asp Pro Glu Asp Ile Asp Cys Trp Cys	
	180 185 190
Thr Lys Ser Ala Val Tyr Val Arg Tyr Gly Arg Cys Thr Lys Thr Arg	
	195 200 205
His Ser Arg Arg Ser Arg Arg Ser Leu Thr Val Gln Thr His Gly Glu	
	210 215 220
Ser Thr Leu Ala Asn Lys Lys Gly Ala Trp Met Asp Ser Thr Lys Ala	
225	230 235 240
Thr Arg Tyr Leu Val Lys Thr Glu Ser Trp Ile Leu Arg Asn Pro Gly	
	245 250 255
Tyr Ala Leu Val Ala Ala Val Ile Gly Trp Met Leu Gly Ser Asn Thr	
	260 265 270
Met Gln Arg Val Val Phe Val Val Leu Leu Leu Val Ala Pro Ala	
	275 280 285
Tyr Ser Phe Asn Cys Leu Gly Met Ser Asn Arg Asp Phe Leu Glu Gly	
	290 295 300
Val Ser Gly Ala Thr Trp Val Asp Leu Val Leu Glu Gly Asp Ser Cys	
305	310 315 320
Val Thr Ile Met Ser Lys Asp Lys Pro Thr Ile Asp Val Lys Met Met	
	325 330 335



Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu
			340					345					350		
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly
		355					360					365			
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Lys	Gln
	370					375					380				
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	LEU	Phe	Gly	Lys
385					390					395					400
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Thr
			405					410						415	
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe
		420					425						430		
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Pro	Thr	Gln
		435					440					445			
Ile	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro
	450					455					460				
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys
465					470					475					480
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val
			485					490						495	
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn
			500					505					510		
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr
		515					520					525			
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala
	530					535					540				
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile
545					550					555					560
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu
			565						570					575	
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr
			580				585						590		
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	ALA	Asp	Thr
		595					600					605			
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly
	610					615					620				
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr
625					630				635						640
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr
			645					650						655	
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser
			660				665						670		
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His
	675						680					685			
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly
	690					695					700				
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	LYS	Ala	Val	His	Gln	Val	Phe
				725					730					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
		755					760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770					775					780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser

785				790				795				800			
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val
				805					810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
		835					840					845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr
			885						890					895	
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
			900					905					910		
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly
		915					920					925			
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu
	930					935					940				
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu
945				950					955					960	
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly
			965					970						975	
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp
			980					985					990		
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu
	995						1000					1005			
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly
	1010					1015					1020				
Glu	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly
1025				1030						1035				1040	
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln
			1045						1050					1055	
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro
			1060					1065					1070		
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala
	1075						1080					1085			
Thr	Arg	Thr	Thr	Thr	Glu	Ser	Gly	Lys	Leu	Ile	Thr	Asp	Trp	Cys	Cys
	1090					1095					1100				
Arg	Ser	Cys	Thr	Leu	Pro	Pro	Leu	Arg	Tyr	Gln	Thr	Asp	Ser	Gly	Cys
1105				1110						1115				1120	
Trp	Tyr	Gly	Met	Glu	Ile	Arg	Pro	Gln	Arg	His	Asp	Glu	Lys	Thr	Leu
			1125						1130					1135	
Val	Gln	Ser	Gln	Val	Asn	Ala	Tyr	Asn	Ala	Asp	Met	Ile	Asp	Pro	Phe
			1140					1145					1150		
Gln	Leu	Gly	Leu	Leu	Val	Val	Phe	Leu	Ala	Thr	Gln	Glu	Val	Leu	Arg
	1155						1160					1165			
Lys	Arg	Trp	Thr	Ala	Lys	Ile	Ser	Met	Pro	Ala	Ile	Leu	Ile	Ala	Leu
	1170					1175						1180			
Leu	Val	Leu	Val	Phe	Gly	Gly	Ile	Thr	Tyr	Thr	Asp	Val	Leu	Arg	Tyr
1185				1190					1195					1200	
Val	Ile	Leu	Val	Gly	Ala	Ala	Phe	Ala	Glu	Ser	Asn	Ser	Gly	Gly	Asp
			1205					1210						1215	
Val	Val	His	Leu	Ala	Leu	Met	Ala	Thr	Phe	Lys	Ile	Gln	Pro	Val	Phe
		1220					1225						1230		
Met	Val	Ala	Ser	Phe	Leu	Lys	Ala	Arg	Trp	Thr	Asn	Gln	Glu	Asn	Ile
		1235					1240						1245		

Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala  
 1250 1255 1260  
 Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala  
 1265 1270 1275 1280  
 Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn  
 1285 1290 1295  
 Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Gly Leu Arg Cys Leu  
 1300 1305 1310  
 Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser  
 1315 1320 1325  
 Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser  
 1330 1335 1340  
 Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile  
 1345 1350 1355 1360  
 Leu Ala Ala Gly Leu Ile Ala Cys Asp Pro Asn Arg Lys Arg Gly Trp  
 1365 1370 1375  
 Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val  
 1380 1385 1390  
 Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr  
 1395 1400 1405  
 Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr  
 1410 1415 1420  
 Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala  
 1425 1430 1435 1440  
 Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp  
 1445 1450 1455  
 Gly Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp  
 1460 1465 1470  
 Met Leu Arg Met Ala Cys Leu Ala Ile Ser Ala Tyr Thr Pro Trp Ala  
 1475 1480 1485  
 Ile Leu Pro Ser Val Val Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys  
 1490 1495 1500  
 Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys  
 1505 1510 1515 1520  
 Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu  
 1525 1530 1535  
 Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His  
 1540 1545 1550  
 Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly  
 1555 1560 1565  
 Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr  
 1570 1575 1580  
 Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val  
 1585 1590 1595 1600  
 Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr  
 1605 1610 1615  
 Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr  
 1620 1625 1630  
 Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln

Ile	Ile	Lys	Glu	Ala	Ile	Asn	Arg	Arg	Leu	Arg	Thr	Ala	Val	Leu	Ala	1700	1705	1710
																1715	1720	1725
Pro	Thr	Arg	Val	Val	Ala	Ala	Glu	Met	Ala	Glu	Ala	Leu	Arg	Gly	Leu	1730	1735	1740
Pro	Ile	Arg	Tyr	Gln	Thr	Ser	Ala	Val	Pro	Arg	Glu	His	Asn	Gly	Asn	1745	1750	1755
																1760	1765	1770
Glu	Ile	Val	Asp	Val	Met	Cys	His	Ala	Thr	Leu	Thr	His	Arg	Leu	Met	1775	1780	1785
																1790	1795	1800
Ser	Pro	His	Arg	Val	Pro	Asn	Tyr	Asn	Leu	Phe	Val	Met	Asp	Glu	Ala	1805	1810	1815
																1820	1825	1830
His	Phe	Thr	Asp	Pro	Ala	Ser	Ile	Ala	Ala	Arg	Gly	Tyr	Ile	Ser	Thr	1835	1840	1845
																1850	1855	1860
Lys	Val	Glu	Leu	Gly	Glu	Ala	Ala	Ala	Ile	Phe	Met	Thr	Ala	Thr	Pro	1865	1870	1875
																1880	1885	1890
Pro	Gly	Thr	Ser	Asp	Pro	Phe	Pro	Glu	Ser	Asn	Ser	Pro	Ile	Ser	Asp	1895	1900	1905
																1910	1915	1920
Leu	Gln	Thr	Glu	Ile	Pro	Asp	Arg	Ala	Trp	Asn	Ser	Gly	Tyr	Glu	Trp	1925	1930	1935
																1940	1945	1950
Ile	Thr	Glu	Tyr	Ile	Gly	Lys	Thr	Val	Trp	Phe	Val	Pro	Ser	Val	Lys	1955	1960	1965
																1970	1975	1980
Met	Gly	Asn	Glu	Ile	Ala	Leu	Cys	Leu	Gln	Arg	Ala	Gly	Lys	Lys	Val	1985	1990	1995
																2000	2005	2010
Val	Gln	Leu	Asn	Arg	Lys	Ser	Tyr	Glu	Thr	Glu	Tyr	Pro	Lys	Cys	Lys	2015	2020	2025
																2030	2035	2040
Asn	Asp	Asp	Trp	Asp	Phe	Val	Ile	Thr	Thr	Asp	Ile	Ser	Glu	Met	Gly	2045	2050	2055
																2060	2065	2070
Ala	Asn	Phe	Lys	Ala	Ser	Arg	Val	Ile	Asp	Ser	Arg	Lys	Ser	Val	Lys	2075	2080	2085
																2090	2095	2100
Pro	Thr	Ile	Ile	Thr	Glu	Gly	Glu	Gly	Arg	Val	Ile	Leu	Gly	Glu	Pro	2105	2110	2115
																2120	2125	2130
Ser	Ala	Val	Thr	Ala	Ala	Ser	Ala	Ala	Gln	Arg	Arg	Gly	Arg	Ile	Gly	2135	2140	2145
																2150	2155	2160
Arg	Asn	Pro	Ser	Gln	Val	Gly	Asp	Glu	Tyr	Cys	Tyr	Gly	Gly	His	Thr	2165	2170	2175
																2180	2185	2190
Asn	Glu	Asp	Asp	Ser	Asn	Phe	Ala	His	Trp	Thr	Glu	Ala	Arg	Ile	Met	2195	2200	2205
																2210	2215	2220
Leu	Asp	Asn	Ile	Asn	Met	Pro	Asn	Gly	Leu	Ile	Ala	Gln	Phe	Tyr	Gln	2225	2230	2235
																2240	2245	2250
Pro	Glu	Arg	Glu	Lys	Val	Tyr	Thr	Met	Asp	Gly	Glu	Tyr	Arg	Leu	Arg	2255	2260	2265
																2270	2275	2280
Gly	Glu	Glu	Arg	Lys	Asn	Phe	Leu	Glu	Leu	Leu	Arg	Thr	Ala	Asp	Leu	2285	2290	2295
																2300	2305	2310
Pro	Val	Trp	Leu	Ala	Tyr	Lys	Val	Ala	Ala	Ala	Gly	Val	Ser	Tyr	His	2315	2320	2325
																2330	2335	2340
Asp	Arg	Arg	Trp	Cys	Phe	Asp	Gly	Pro	Arg	Thr	Asn	Thr	Ile	Leu	Glu	2345	2350	2355
																2360	2365	2370
Asp	Asn	Asn	Glu	Val	Glu	Val	Ile	Thr	Lys	Leu	Gly	Glu	Arg	Lys	Ile	2375	2380	2385
																2390	2395	2400
Leu	Arg	Pro	Arg	Trp	Ile	Asp	Ala	Arg	Val	Tyr	Ser	Asp	His	Gln	Ala	2405	2410	2415
																2420	2425	2430
Leu	Lys	Ala	Phe	Lys	Asp	Phe	Ala	Ser	Gly	Lys	Arg	Ser	Gln	Ile	Gly	2435	2440	2445
																2450	2455	2460
Leu	Ile	Glu	Val	Leu	Gly	Lys	Met	Pro	Glu	His	Phe	Met	Gly	Lys	Thr	2465	2470	2475
																2480	2485	2490
Trp	Glu	Ala	Leu	Asp	Thr	Met	Tyr	Val	Val	Ala	Thr	Ala	Glu	Lys	Gly	2495	2500	2505
																2510	2515	2520

Gly	Arg	Ala	His	Arg	Met	Ala	Leu	Glu	Glu	Leu	Pro	Asp	Ala	Leu	Gln	2165	2170	2175
Thr	Ile	Ala	Leu	Ile	Ala	Leu	Leu	Ser	Val	Met	Thr	Met	Gly	Val	Phe	2180	2185	2190
Phe	Leu	Leu	Met	Gln	Arg	Lys	Gly	Ile	Gly	Lys	Ile	Gly	Leu	Gly	Gly	2195	2200	2205
Val	Val	Leu	Gly	Val	Ala	Thr	Phe	Phe	Cys	Trp	Met	Ala	Glu	Val	Pro	2210	2215	2220
Gly	Thr	Lys	Ile	Ala	Gly	Met	Leu	Leu	Leu	Ser	Leu	Leu	Leu	Met	Ile	2225	2230	2235
Val	Leu	Ile	Pro	Glu	Pro	Glu	Lys	Gln	Arg	Ser	Gln	Thr	Asp	Asn	Gln	2245	2250	2255
Leu	Ala	Val	Phe	Leu	Ile	Cys	Val	Leu	Thr	Leu	Val	Ser	Ala	Val	Ala	2260	2265	2270
Ala	Asn	Glu	Met	Gly	Trp	Leu	Asp	Lys	Thr	Lys	Asn	Asp	Ile	Ser	Ser	2275	2280	2285
Leu	Phe	Gly	Gln	Arg	Ile	Glu	Ala	Lys	Glu	Asn	Phe	Ser	Met	Gly	Glu	2290	2295	2300
Phe	Leu	Leu	Asp	Leu	Arg	Pro	Ala	Thr	Ala	Trp	Ser	Leu	Tyr	Ala	Val	2305	2310	2315
Thr	Thr	Ala	Val	Leu	Thr	Pro	Leu	Leu	Lys	His	Leu	Ile	Thr	Ser	Asp	2325	2330	2335
Tyr	Ile	Asn	Thr	Ser	Leu	Thr	Ser	Ile	Asn	Val	Gln	Ala	Ser	Ala	Leu	2340	2345	2350
Phe	Thr	Leu	Ala	Arg	Gly	Phe	Pro	Phe	Val	Asp	Val	Gly	Val	Ser	Ala	2355	2360	2365
Leu	Leu	Leu	Ala	Ala	Gly	Cys	Trp	Gly	Gln	Val	Thr	Leu	Thr	Val	Thr	2370	2375	2380
Val	Thr	Ala	Ala	Thr	Leu	Phe	Cys	His	Tyr	Ala	Tyr	Met	Val	Pro		2385	2390	2395
Gly	Trp	Gln	Ala	Glu	Ala	Met	Arg	Ser	Ala	Gln	Arg	Arg	Thr	Ala	Ala	2405	2410	2415
Gly	Ile	Met	Lys	Asn	Ala	Val	Val	Asp	Gly	Ile	Val	Ala	Thr	Asp	Val	2420	2425	2430
Pro	Glu	Leu	Glu	Arg	Thr	Thr	Pro	Ile	Met	Gln	Lys	Lys	Val	Gly	Gln	2435	2440	2445
Ile	Met	Leu	Ile	Leu	Val	Ser	Leu	Ala	Ala	Val	Val	Val	Asn	Pro	Ser	2450	2455	2460
Val	Lys	Thr	Val	Arg	Glu	Ala	Gly	Ile	Leu	Ile	Thr	Ala	Ala	Ala	Val	2465	2470	2475
Thr	Leu	Trp	Glu	Asn	Gly	Ala	Ser	Ser	Val	Trp	Asn	Ala	Thr	Thr	Ala	2485	2490	2495
Ile	Gly	Leu	Cys	His	Ile	Met	Arg	Gly	Gly	Trp	Leu	Ser	Cys	Leu	Ser	2500	2505	2510
Ile	Thr	Trp	Thr	Leu	Ile	Lys	Asn	Met	Glu	Lys	Pro	Gly	Leu	Lys	Arg	2515	2520	2525
Gly	Gly	Ala	Lys	Gly	Arg	Thr	Leu	Gly	Glu	Val	Trp	Lys	Glu	Arg	Leu	2530	2535	2540
Asn	Gln	Met	Thr	Lys	Glu	Phe	Thr	Arg	Tyr	Arg	Lys	Glu	Ala	Ile		2545	2550	2555
Ile	Glu	Val	Asp	Arg	Ser	Ala	Ala	Lys	His	Ala	Arg	Lys	Glu	Gly	Asn	2565	2570	2575
Val	Thr	Gly	Gly	His	Pro	Val	Ser	Arg	Gly	Thr	Ala	Lys	Leu	Arg	Trp	2580	2585	2590
Leu	Val	Glu	Arg	Arg	Phe	Leu	Glu	Pro	Val	Gly	Lys	Val	Ile	Asp	Leu	2595	2600	2605
Gly	Cys	Gly	Arg	Gly	Gly	Trp	Cys	Tyr	Tyr	Met	Ala	Thr	Gln	Lys	Arg			

2610	2615	2620
Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu		
2625	2630	2635
Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser		2640
	2645	2650
Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu		2655
	2660	2665
Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg		2670
	2675	2680
Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro		2685
	2690	2695
Lys Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile		2700
2705	2710	2715
Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg		2720
	2725	2730
Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg		2735
	2740	2745
Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu		2750
	2755	2760
Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu		2765
	2770	2775
Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu		2780
2785	2790	2795
Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg		2800
	2805	2810
Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr		2815
	2820	2825
Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser		2830
	2835	2840
Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr		2845
	2850	2855
Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly		2860
2865	2870	2875
Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro		2880
	2885	2890
Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp		2895
	2900	2905
Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu		2910
	2915	2920
Phe Ile Lys Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu		2925
	2930	2935
Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys		2940
2945	2950	2955
Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu		2960
	2965	2970
Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro		2975
	2980	2985
Gly Glu Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Phe Met Trp		2990
	2995	3000
Leu Gly Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu		3005
	3010	3015
Asp His Trp Leu Gly Arg Lys Asn Ser Gly Gly Gly Val Glu Gly Leu		3020
3025	3030	3035
Gly Leu Gln Lys Leu Gly Tyr Ile Leu Arg Glu Val Gly Thr Arg Pro		3040
	3045	3050
Gly Gly Lys Ile Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile		3055
	3060	3065
		3070

Thr Arg Ala Asp Leu Glu Asn Glu Ala Lys Val Leu Glu Leu Leu Asp  
 3075 3080 3085  
 Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg  
 3090 3095 3100  
 His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val  
 3105 3110 3115 3120  
 Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val  
 3125 3130 3135  
 Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg  
 3140 3145 3150  
 Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu  
 3155 3160 3165  
 Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly  
 3170 3175 3180  
 Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val  
 3185 3190 3195 3200  
 Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala  
 3205 3210 3215  
 Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly  
 3220 3225 3230  
 Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu  
 3235 3240 3245  
 Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln  
 3250 3255 3260  
 Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn  
 3265 3270 3275 3280  
 Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu  
 3285 3290 3295  
 Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile  
 3300 3305 3310  
 Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp  
 3315 3320 3325  
 Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu  
 3330 3335 3340  
 Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys  
 3345 3350 3355 3360  
 Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu  
 3365 3370 3375  
 Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Thr Arg Ala Thr Trp  
 3380 3385 3390  
 Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly  
 3395 3400 3405  
 Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp  
 3410 3415 3420  
 Thr Thr Leu Val Glu Asp Thr Val Leu  
 3425 3430

**West Nile Virus - AF260969**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met  
 1 5 10 15  
 Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg  
 20 25 30  
 Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu  
 35 40 45  
 Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala  
 50 55 60

Val	Leu	Asp	Arg	Trp	Arg	Gly	Val	Asn	Lys	Gln	Thr	Ala	Met	Lys	His
65					70					75					80
Leu	Leu	Ser	Phe	Lys	Lys	Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn
				85					90					95	
Arg	Arg	Ser	Ser	Lys	Gln	Lys	Lys	Arg	Gly	Gly	Lys	Thr	Gly	Ile	Ala
			100					105					110		
Val	Met	Ile	Gly	Leu	Ile	Ala	Ser	Val	Gly	Ala	Val	Thr	Leu	Ser	Asn
		115						120				125			
Phe	Gln	Gly	Lys	Val	Met	Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp
	130					135					140				
Val	Ile	Thr	Ile	Pro	Thr	Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg
145					150					155					160
Ala	Met	Asp	Val	Gly	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu	Cys
				165					170					175	
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys
			180					185					190		
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg
		195					200					205			
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu
	210					215					220				
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala
225					230					235					240
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly
			245						250					255	
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr
			260					265					270		
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala
		275						280					285		
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly
	290					295					300				
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys
305					310					315					320
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met
				325					330					335	
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu
			340					345					350		
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly
			355					360					365		
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln
	370					375					380				
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly	Lys
385					390					395					400
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Thr
				405					410					415	
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe
			420					425					430		
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln
		435					440					445			
Ile	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro
	450					455					460				
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys
465					470					475				480	
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val
				485					490					495	
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn
			500					505					510		
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr



		515					520					525				
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala	
	530					535					540					
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile	
545					550					555					560	
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu	
				565					570					575		
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr	
			580					585					590			
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	ALA	Asp	Thr	
		595					600					605				
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly	
	610					615					620					
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr	
625					630					635					640	
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr	
				645					650					655		
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser	
			660					665					670			
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His	
		675					680					685				
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly	
	690					695					700					
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser	
705					710					715					720	
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	LYS	Ala	Val	His	Gln	Val	Phe	
				725					730					735		
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln	
			740					745					750			
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp	
		755					760					765				
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe	
	770					775					780					
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser	
785					790					795					800	
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val	
				805					810					815		
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly	
			820					825					830			
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu	
		835					840					845				
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ser	Val	Lys	Asp	
	850					855										

Thr Ala Val Lys Asn Asn Leu Ala Ile His Ser Asp Leu Ser Tyr Trp  
 980 985 990  
 Ile Glu Ser Arg Phe Asn Asp Thr Trp Lys Leu Glu Arg Ala Val Leu  
 995 1000 1005  
 Gly Glu Val Lys Ser Cys Thr Trp Pro Glu Thr His Thr Leu Trp Gly  
 1010 1015 1020  
 Asp Gly Ile Leu Glu Ser Asp Leu Ile Ile Pro Val Thr Leu Ala Gly  
 1025 1030 1035 1040  
 Pro Arg Ser Asn His Asn Arg Arg Pro Gly Tyr Lys Thr Gln Asn Gln  
 1045 1050 1055  
 Gly Pro Trp Asp Glu Gly Arg Val Glu Ile Asp Phe Asp Tyr Cys Pro  
 1060 1065 1070  
 Gly Thr Thr Val Thr Leu Ser Glu Ser Cys Gly His Arg Gly Pro Ala  
 1075 1080 1085  
 Thr Arg Thr Thr Thr Glu Ser Gly Lys Leu Ile Thr Asp Trp Cys Cys  
 1090 1095 1100  
 Arg Ser Cys Thr Leu Pro Pro Leu Arg Tyr Gln Thr Asp Ser Gly Cys  
 1105 1110 1115 1120  
 Trp Tyr Gly Met Glu Ile Arg Pro Gln Arg His Asp Glu Lys Thr Leu  
 1125 1130 1135  
 Val Gln Ser Gln Val Asn Ala Tyr Asn Ala Asp Met Ile Asp Pro Phe  
 1140 1145 1150  
 Gln Leu Gly Leu Leu Val Val Phe Leu Ala Thr Gln Glu Val Leu Arg  
 1155 1160 1165  
 Lys Arg Trp Thr Ala Lys Ile Ser Met Pro Ala Ile Leu Ile Ala Leu  
 1170 1175 1180  
 Leu Val Leu Val Phe Gly Gly Ile Thr Tyr Thr Asp Val Leu Arg Tyr  
 1185 1190 1195 1200  
 Val Ile Leu Val Gly Ala Ala Phe Ala Glu Ser Asn Ser Gly Gly Asp  
 1205 1210 1215  
 Val Val His Leu Ala Leu Met Ala Thr Phe Lys Ile Gln Pro Val Phe  
 1220 1225 1230  
 Met Val Ala Ser Phe Leu Lys Ala Arg Trp Thr Asn Gln Glu Asn Ile  
 1235 1240 1245  
 Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala  
 1250 1255 1260  
 Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala  
 1265 1270 1275 1280  
 Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn  
 1285 1290 1295  
 Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Gly Leu Arg Cys Leu  
 1300 1305 1310  
 Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser  
 1315 1320 1325  
 Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser  
 1330 1335 1340  
 Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile  
 1345 1350 1355 1360  
 Leu Ala Ala Gly Leu Ile Ala Cys Asp Pro Asn Arg Lys Arg Gly Trp  
 1365 1370 1375  
 Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val  
 1380 1385 1390  
 Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr  
 1395 1400 1405  
 Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr  
 1410 1415 1420  
 Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala

1425		1430		1435		1440
Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp						
	1445		1450		1455	
Gly Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp						
	1460		1465		1470	
Met Leu Arg Met Val Cys Leu Ala Val Ser Ala Tyr Thr Pro Trp Ala						
	1475		1480		1485	
Ile Leu Pro Ser Val Val Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys						
	1490		1495		1500	
Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys						
1505		1510		1515		1520
Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu						
	1525		1530		1535	
Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His						
	1540		1545		1550	
Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly						
	1555		1560		1565	
Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr						
	1570		1575		1580	
Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val						
1585		1590		1595		1600
Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr						
	1605		1610		1615	
Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr						
	1620		1625		1630	
Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn						
	1635		1640		1645	
Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly						
	1650		1655		1660	
Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile						
1665		1670		1675		1680
Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val						
	1685		1690		1695	
Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln						
	1700		1705		1710	
Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala						
	1715		1720		1725	
Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu						
	1730		1735		1740	
Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn						
1745		1750		1755		1760
Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met						
	1765		1770		1775	
Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala						
	1780		1785		1790	
His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr						
	1795		1800		1805	
Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro						
	1810		1815		1820	
Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp						
1825		1830		1835		1840
Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp						
	1845		1850		1855	
Ile Thr Glu Tyr Ile Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys						
	1860		1865		1870	
Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val						
	1875		1880		1885	

Val	Gln	Leu	Asn	Arg	Lys	Ser	Tyr	Glu	Thr	Glu	Tyr	Pro	Lys	Cys	Lys	
1890						1895					1900					
Asn	Asp	Asp	Trp	Asp	Phe	Val	Ile	Thr	Thr	Asp	Ile	Ser	Glu	Met	Gly	
1905					1910					1915					1920	
Ala	Asn	Phe	Lys	Ala	Ser	Arg	Val	Ile	Asp	Ser	Arg	Lys	Ser	Val	Lys	
				1925					1930						1935	
Pro	Thr	Ile	Ile	Thr	Glu	Gly	Glu	Gly	Arg	Val	Ile	Leu	Gly	Glu	Pro	
			1940					1945						1950		
Ser	Ala	Val	Thr	Ala	Ala	Ser	Ala	Ala	Gln	Arg	Arg	Gly	Arg	Ile	Gly	
	1955						1960						1965			
Arg	Asn	Pro	Ser	Gln	Val	Gly	Asp	Glu	Tyr	Cys	Tyr	Gly	Gly	His	Thr	
1970						1975					1980					
Asn	Glu	Asp	Asp	Ser	Asn	Phe	Ala	His	Trp	Thr	Glu	Ala	Arg	Ile	Met	
1985					1990					1995					2000	
Leu	Asp	Asn	Ile	Asn	Met	Pro	Asn	Gly	Leu	Ile	Ala	Gln	Phe	Tyr	Gln	
				2005					2010						2015	
Pro	Glu	Arg	Glu	Lys	Val	Tyr	Thr	Met	Asp	Gly	Glu	Tyr	Arg	Leu	Arg	
			2020					2025					2030			
Gly	Glu	Glu	Arg	Lys	Asn	Phe	Leu	Glu	Leu	Leu	Arg	Thr	Ala	Asp	Leu	
	2035						2040					2045				
Pro	Val	Trp	Leu	Ala	Tyr	Lys	Val	Ala	Ala	Ala	Gly	Val	Ser	Tyr	His	
	2050					2055					2060					
Asp	Arg	Arg	Trp	Cys	Phe	Asp	Gly	Pro	Arg	Thr	Asn	Thr	Ile	Leu	Glu	
2065					2070					2075					2080	
Asp	Asn	Asn	Glu	Val	Glu	Val	Ile	Thr	Lys	Leu	Gly	Glu	Arg	Lys	Ile	
			2085						2090						2095	
Leu	Arg	Pro	Arg	Trp	Ile	Asp	Ala	Arg	Val	Tyr	Ser	Asp	His	Gln	Ala	
		2100						2105						2110		
Leu	Lys	Ala	Phe	Lys	Asp	Phe	Ala	Ser	Gly	Lys	Arg	Ser	Gln	Ile	Gly	
	2115						2120					2125				
Leu	Ile	Glu	Val	Leu	Gly	Lys	Met	Pro	Glu	His	Phe	Met	Gly	Lys	Thr	
	2130					2135					2140					
Trp	Glu	Ala	Leu	Asp	Thr	Met	Tyr	Val	Val	Ala	Thr	Ala	Glu	Lys	Gly	
2145					2150					2155					2160	
Gly	Arg	Ala	His	Arg	Met	Ala	Leu	Glu	Glu	Leu	Pro	Asp	Ala	Leu	Gln	
				2165					2170						2175	
Thr	Ile	Ala	Leu	Ile	Ala	Leu	Leu	Ser	Val	Met	Thr	Met	Gly	Val	Phe	
		2180						2185						2190		
Phe	Leu	Leu	Met	Gln	Arg	Lys	Gly	Ile	Gly	Lys	Ile	Gly	Leu	Gly	Gly	
	2195						2200					2205				
Val	Val	Leu	Gly	Val	Ala	Thr	Phe	Phe	Cys	Trp	Met	Ala	Glu	Val	Pro	
	2210					2215					2220					
Gly	Thr	Lys	Ile	Ala	Gly	Met	Leu	Leu	Leu	Ser	Leu	Leu	Leu	Met	Ile	
2225					2230					2235					2240	
Val	Leu	Ile	Pro	Glu	Pro	Glu	Lys	Gln	Arg	Ser	Gln	Thr	Asp	Asn	Gln	
			2245						2250						2255	
Leu	Ala	Val	Phe	Leu	Ile	Cys	Val	Met	Thr	Leu	Val	Ser	Ala	Val	Ala	
	2260							2265						2270		
Ala	Asn	Glu	Met	Gly	Trp	Leu	Asp	Lys	Thr	Lys	Ser	Asp	Val	Ser	Ser	
	2275						2280					2285				
Leu	Phe	Gly	Gln	Arg	Ile	Glu	Val	Lys	Glu	Asn	Phe	Ser	Met	Gly	Glu	
	2290					2295					2300					
Phe	Leu	Leu	Asp	Leu	Arg	Pro	Ala	Thr	Ala	Trp	Ser	Leu	Tyr	Ala	Val	
2305					2310					2315					2320	
Thr	Thr	Ala	Val	Leu	Thr	Pro	Leu	Leu	Lys	His	Leu	Ile	Thr	Ser	Asp	
			2325						2330						2335	
Tyr	Ile	Asn	Thr	Ser	Leu	Thr	Ser	Ile	Asn	Val	Gln	Ala	Ser	Ala	Leu	

2340										2345					2350				
Phe	Thr	Leu	Ala	Arg	Gly	Phe	Pro	Phe	Val	Asp	Val	Gly	Val	Ser	Ala				
2355										2360					2365				
Leu	Leu	Leu	Ala	Ala	Gly	Cys	Trp	Gly	Gln	Val	Thr	Leu	Thr	Val	Thr				
2370										2375					2380				
Val	Thr	Ala	Ala	Thr	Leu	Leu	Phe	Cys	His	Tyr	Ala	Tyr	Met	Val	Pro				
2385										2390					2395				
Gly	Trp	Gln	Ala	Glu	Ala	Met	Arg	Ser	Ala	Gln	Arg	Arg	Thr	Ala	Ala				
2405										2410					2415				
Gly	Ile	Met	Lys	Asn	Ala	Val	Val	Asp	Gly	Ile	Val	Ala	Thr	Asp	Val				
2420										2425					2430				
Pro	Glu	Leu	Glu	Arg	Thr	Thr	Pro	Ile	Met	Gln	Lys	Lys	Val	Gly	Gln				
2435										2440					2445				
Ile	Met	Leu	Ile	Leu	Val	Ser	Leu	Ala	Ala	Val	Val	Val	Asn	Pro	Ser				
2450										2455					2460				
Val	Lys	Thr	Val	Arg	Glu	Ala	Gly	Ile	Leu	Ile	Thr	Ala	Ala	Ala	Val				
2465										2470					2475				
Thr	Leu	Trp	Glu	Asn	Gly	Ala	Ser	Ser	Val	Trp	Asn	Ala	Thr	Thr	Ala				
2485										2490					2495				
Ile	Gly	Leu	Cys	His	Ile	Met	Arg	Gly	Gly	Trp	Leu	Ser	Cys	Leu	Ser				
2500										2505					2510				
Ile	Thr	Trp	Thr	Leu	Met	Lys	Asn	Met	Asp	Lys	Pro	Gly	Leu	Lys	Arg				
2515										2520					2525				
Gly	Gly	Ala	Lys	Gly	Arg	Thr	Leu	Gly	Glu	Val	Trp	Lys	Glu	Arg	Leu				
2530										2535					2540				
Asn	Gln	Met	Thr	Lys	Glu	Glu	Phe	Thr	Arg	Tyr	Arg	Lys	Glu	Ala	Ile				
2545										2550					2555				
Ile	Glu	Val	Asp	Arg	Ser	Ala	Ala	Lys	His	Ala	Arg	Lys	Glu	Gly	Asn				
2565										2570					2575				
Val	Thr	Gly	Gly	His	Pro	Val	Ser	Arg	Gly	Thr	Ala	Lys	Leu	Arg	Trp				
2580										2585					2590				
Leu	Val	Glu	Arg	Arg	Phe	Leu	Glu	Pro	Val	Gly	Lys	Val	Ile	Asp	Leu				
2595										2600					2605				
Gly	Cys	Gly	Arg	Gly	Gly	Trp	Cys	Tyr	Tyr	Met	Ala	Thr	Gln	Lys	Arg				
2610										2615					2620				
Val	Gln	Glu	Val	Arg	Gly	Tyr	Thr	Lys	Gly	Gly	Pro	Gly	His	Glu	Glu				
2625										2630					2635				
Pro	Gln	Leu	Val	Gln	Ser	Tyr	Gly	Trp	Asn	Ile	Val	Thr	Met	Lys	Ser				
2645										2650					2655				
Gly	Val	Asp	Val	Phe	Tyr	Arg	Pro	Ser	Glu	Cys	Cys	Asp	Thr	Leu	Leu				
2660										2665					2670				
Cys	Asp	Ile	Gly	Glu	Ser	Ser	Ser	Ser	Ala	Glu	Val	Glu	Glu	His	Arg				
2675										2680					2685				
Thr	Ile	Arg	Val	Leu	Glu	Met	Val	Glu	Asp	Trp	Leu	His	Arg	Gly	Pro				
2690										2695					2700				
Arg	Glu	Phe	Cys	Val	Lys	Val	Leu	Cys	Pro	Tyr	Met	Pro	Lys	Val	Ile				
2705										2710					2715				
Glu	Lys	Met	Glu	Leu	Leu	Gln	Arg	Arg	Tyr	Gly	Gly	Gly	Leu	Val	Arg				
2725										2730					2735				
Asn	Pro	Leu	Ser	Arg	Asn	Ser	Thr	His	Glu	Met	Tyr	Trp	Val	Ser	Arg				
2740										2745					2750				
Ala	Ser	Gly	Asn	Val	Val	His	Ser	Val	Asn	Met	Thr	Ser	Gln	Val	Leu				
2755										2760					2765				
Leu	Gly	Arg	Met	Glu	Lys	Arg	Thr	Trp	Lys	Gly	Pro	Gln	Tyr	Glu	Glu				
2770										2775					2780				
Asp	Val	Asn	Leu	Gly															

Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg  
 2805 2810 2815  
 Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr  
 2820 2825 2830  
 Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser  
 2835 2840 2845  
 Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr  
 2850 2855 2860  
 Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly  
 2865 2870 2875 2880  
 Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro  
 2885 2890 2895  
 Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp  
 2900 2905 2910  
 Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu  
 2915 2920 2925  
 Phe Ile Arg Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu  
 2930 2935 2940  
 Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys  
 2945 2950 2955 2960  
 Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu  
 2965 2970 2975  
 Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro  
 2980 2985 2990  
 Gly Glu Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Phe Met Trp  
 2995 3000 3005  
 Leu Gly Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu  
 3010 3015 3020  
 Asp His Trp Leu Gly Arg Lys Asn Ser Gly Gly Gly Val Glu Gly Leu  
 3025 3030 3035 3040  
 Gly Leu Gln Lys Leu Gly Tyr Ile Leu Arg Glu Val Gly Thr Arg Pro  
 3045 3050 3055  
 Gly Gly Lys Ile Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile  
 3060 3065 3070  
 Thr Arg Ala Asp Leu Glu Asn Glu Ala Lys Val Leu Glu Leu Leu Asp  
 3075 3080 3085  
 Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg  
 3090 3095 3100  
 His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val  
 3105 3110 3115 3120  
 Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val  
 3125 3130 3135  
 Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg  
 3140 3145 3150  
 Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu  
 3155 3160 3165  
 Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly  
 3170 3175 3180  
 Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val  
 3185 3190 3195 3200  
 Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala  
 3205 3210 3215  
 Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly  
 3220 3225 3230  
 Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu  
 3235 3240 3245  
 Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln

3250	3255	3260
Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn		
3265	3270	3275
Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu		3280
	3285	3290
Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile		3295
	3300	3305
Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp		3310
	3315	3320
Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu		3325
	3330	3335
Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys		3340
3345	3350	3355
Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu		3360
	3365	3370
Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp		3375
	3380	3385
Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly		3390
	3395	3400
Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp		3405
	3410	3415
Thr Ile Leu Val Glu Asp Thr Val Leu		3420
3425	3430	

**West Nile Virus - AF481864**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met		
1	5	10
Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg		15
	20	25
Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu		30
	35	40
Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala		45
	50	55
Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His		60
65	70	75
Leu Leu Ser Phe Lys Lys Glu Leu Gly Thr Leu Thr Ser Ala Ile Asn		80
	85	90
Arg Arg Ser Ser Lys Gln Lys Lys Arg Gly Gly Lys Thr Gly Ile Ala		95
	100	105
Val Met Ile Gly Leu Ile Ala Ser Val Gly Ala Val Thr Leu Ser Asn		110
	115	120
Phe Gln Gly Lys Val Met Met Thr Val Asn Ala Thr Asp Val Thr Asp		125
	130	135
Val Ile Thr Ile Pro Thr Ala Ala Gly Lys Asn Leu Cys Ile Val Arg		140
145	150	155
Ala Met Asp Val Gly Tyr Met Cys Asp Asp Thr Ile Thr Tyr Glu Cys		160
	165	170
Pro Val Leu Ser Ala Gly Asn Asp Pro Glu Asp Ile Asp Cys Trp Cys		175
	180	185
Thr Lys Ser Ala Val Tyr Val Arg Tyr Gly Arg Cys Thr Lys Thr Arg		190
	195	200
His Ser Arg Arg Ser Arg Arg Ser Leu Thr Val Gln Thr His Gly Glu		205
	210	215
Ser Thr Leu Ala Asn Lys Lys Gly Ala Trp Met Asp Ser Thr Lys Ala		220
225	230	235
Thr Arg Tyr Leu Val Lys Thr Glu Ser Trp Ile Leu Arg Asn Pro Gly		240

				245					250				255				
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr		
			260					265					270				
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala		
		275					280					285					
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly		
	290					295					300						
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys		
305					310					315					320		
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met		
			325						330					335			
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu		
		340						345					350				
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly		
		355					360					365					
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln		
	370					375					380						
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly	Lys		
385					390					395					400		
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile		
			405					410					415				
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe		
			420					425					430				
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln		
		435					440					445					
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro		
	450					455					460						
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys		
465					470					475					480		
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val		
			485					490					495				
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn		
			500					505					510				
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr		
		515					520					525					
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala		
	530					535					540						
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile		
545					550					555					560		
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu		
			565					570					575				
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr		
			580					585					590				
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	<b>ALA</b>	Asp	Thr		
	595						600					605					
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly		
	610					615					620						
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr		
625					630					635					640		
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr		
			645					650						655			
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser		
			660					665					670				
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His		
	675					680						685					
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly		
	690					695						700					



Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	<b>LYS</b>	Ala	Val	His	Gln	Val	Phe
				725					<b>730</b>						735
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
		755					760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770				775						780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Asn	Gly	Val	Phe	Ile	His	Asn	Asp	Val
				805					810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
		835					840					845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr
				885					890					895	
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
			900					905					910		
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly
		915					920					925			
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu
	930					935					940				
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu
945					950					955					960
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly
				965					970					975	
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp
			980					985					990		
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu
		995					1000					1005			
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly
	1010					1015					1020				
Asp	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly
1025					1030					1035					1040
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln
				1045					1050					1055	
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro
			1060					1065					1070		
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala
		1075					1080					1085			
Thr	Arg	Thr	Thr	Thr	Glu	Ser	Gly	Lys	Leu	Ile	Thr	Asp	Trp	Cys	Cys
	1090					1095					1100				
Arg	Ser	Cys	Thr	Leu	Pro	Pro	Leu	Arg	Tyr	Gln	Thr	Asp	Ser	Gly	Cys
1105				1110						1115					1120
Trp	Tyr	Gly	Met	Glu	Ile	Arg	Pro	Gln	Arg	His	Asp	Glu	Lys	Thr	Leu
				1125					1130					1135	
Val	Gln	Ser	Gln	Val	Asn	Ala	Tyr	Asn	Ala	Asp	Met	Ile	Asp	Pro	Phe
				1140				1145					1150		
Gln	Leu	Gly	Leu	Leu	Val	Val	Phe	Leu	Ala	Thr	Gln	Glu	Val	Leu	Arg

1155	1160	1165
Lys Arg Trp Thr Ala Lys Ile Ser Met Pro Ala Ile Leu Ile Ala Leu		
1170	1175	1180
Leu Val Leu Val Phe Gly Gly Ile Thr Tyr Thr Asp Val Leu Arg Tyr		
1185	1190	1195
Val Ile Leu Val Gly Ala Ala Phe Ala Glu Ser Asn Ser Gly Gly Asp		1200
	1205	1210
Val Val His Leu Ala Leu Met Ala Thr Phe Lys Ile Gln Pro Val Phe		1215
	1220	1225
Met Val Ala Ser Phe Leu Lys Ala Arg Trp Thr Asn Gln Glu Asn Ile		1230
	1235	1240
Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala		1245
	1250	1255
Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala		1260
1265	1270	1275
Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn		1280
	1285	1290
Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Arg Leu Arg Cys Leu		1295
	1300	1305
Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser		1310
	1315	1320
Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser		1325
	1330	1335
Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile		1340
1345	1350	1355
Leu Ala Ala Gly Leu Ile Ala Cys Asp Pro Asn Arg Lys Arg Gly Trp		1360
	1365	1370
Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val		1375
	1380	1385
Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr		1390
	1395	1400
Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr		1405
	1410	1415
Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala		1420
1425	1430	1435
Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Gly		1440
	1445	1450
Glu Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp		1455
	1460	1465
Met Leu Arg Met Val Cys Leu Ala Ile Ser Ala Tyr Thr Pro Trp Ala		1470
	1475	1480
Ile Leu Pro Ser Val Val Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys		1485
	1490	1495
Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys		1500
1505	1510	1515
Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu		1520
	1525	1530
Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His		1535
	1540	1545
Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly		1550
	1555	1560
Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr		1565
	1570	1575
Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val		1580
1585	1590	1595
Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr		1600
	1605	1610
		1615

Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr  
 1620 1625 1630  
 Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln  
 1700 1705 1710  
 Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala  
 1715 1720 1725  
 Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu  
 1730 1735 1740  
 Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn  
 1745 1750 1755 1760  
 Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met  
 1765 1770 1775  
 Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala  
 1780 1785 1790  
 His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr  
 1795 1800 1805  
 Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro  
 1810 1815 1820  
 Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp  
 1825 1830 1835 1840  
 Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp  
 1845 1850 1855  
 Ile Thr Glu Tyr Thr Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys  
 1860 1865 1870  
 Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val  
 1875 1880 1885  
 Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys  
 1890 1895 1900  
 Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly  
 1905 1910 1915 1920  
 Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys  
 1925 1930 1935  
 Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro  
 1940 1945 1950  
 Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly  
 1955 1960 1965  
 Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr  
 1970 1975 1980  
 Asn Glu Asp Asp Ser Asn Phe Ala His Trp Thr Glu Ala Arg Ile Met  
 1985 1990 1995 2000  
 Pro Asp Asn Ile Asn Met Pro Asn Gly Leu Ile Ala Gln Phe Tyr Gln  
 2005 2010 2015  
 Pro Glu Arg Glu Lys Val Tyr Thr Met Glu Gly Glu Tyr Arg Leu Arg  
 2020 2025 2030  
 Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu  
 2035 2040 2045  
 Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Ser Tyr His  
 2050 2055 2060  
 Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu

2065		2070		2075		2080
Asp Asn Asn Glu Val	Glu Val Ile Thr	Lys Leu Gly Glu Arg	Lys Ile			
	2085		2090			2095
Leu Arg Pro Arg Trp	Ile Asp Ala Arg	Val Tyr Ser Asp	His Gln Ala			
	2100		2105			2110
Leu Lys Ala Phe Lys	Asp Phe Ala Ser	Gly Lys Arg Ser	Gln Ile Gly			
	2115		2120			2125
Leu Ile Glu Val Leu	Gly Lys Met Pro	Glu His Phe Met	Gly Lys Thr			
	2130		2135			2140
Trp Glu Ala Leu Asp	Thr Met Tyr Val	Val Ala Thr Ala	Glu Lys Gly			
	2145		2150			2155
Gly Arg Ala His Arg	Met Ala Leu Glu	Glu Leu Pro Asp	Ala Leu Gln			
	2165		2170			2175
Thr Ile Ala Leu Ile	Ala Leu Leu Ser	Val Met Thr Met	Gly Val Phe			
	2180		2185			2190
Phe Leu Leu Met Gln	Arg Lys Gly Ile	Gly Lys Ile Gly	Leu Gly Gly			
	2195		2200			2205
Ala Val Leu Gly Val	Ala Thr Phe Phe	Cys Trp Met Ala	Glu Val Pro			
	2210		2215			2220
Gly Thr Lys Ile Ala	Gly Met Leu Leu	Leu Ser Leu Leu	Leu Met Ile			
	2225		2230			2235
Val Leu Ile Pro Glu	Pro Glu Lys Gln	Arg Ser Gln Thr	Asp Asn Gln			
	2245		2250			2255
Leu Ala Val Phe Leu	Ile Cys Val Met	Thr Leu Val Ser	Ala Val Ala			
	2260		2265			2270
Ala Asn Glu Met Gly	Trp Leu Asp Lys	Thr Lys Ser Asp	Ile Ser Ser			
	2275		2280			2285
Leu Phe Gly Gln Arg	Ile Glu Val Lys	Glu Asn Phe Ser	Met Gly Glu			
	2290		2295			2300
Phe Leu Leu Asp Leu	Arg Pro Ala Thr	Ala Trp Ser Leu	Tyr Ala Val			
	2305		2310			2315
Thr Thr Ala Val Leu	Thr Pro Leu Leu	Lys His Leu Ile	Thr Ser Asp			
	2325		2330			2335
Tyr Ile Asn Thr Ser	Leu Thr Ser Ile	Asn Val Gln Ala	Ser Ala Leu			
	2340		2345			2350
Phe Thr Leu Ala Arg	Gly Phe Pro Phe	Val Asp Val Gly	Val Ser Ala			
	2355		2360			2365
Leu Leu Leu Ala Ala	Gly Cys Trp Gly	Gln Val Thr Leu	Thr Val Thr			
	2370		2375			2380
Val Thr Ala Ala Thr	Leu Leu Phe Cys	His Tyr Ala Tyr	Met Val Pro			
	2385		2390			2395
Gly Trp Gln Ala Glu	Ala Met Arg Ser	Ala Gln Arg Arg	Thr Ala Ala			
	2405		2410			2415
Gly Ile Met Lys Asn	Ala Val Val Asp	Gly Ile Val Ala	Thr Asp Val			
	2420		2425			2430
Pro Glu Leu Glu Arg	Thr Thr Pro Ile	Met Gln Lys Lys	Val Gly Gln			
	2435		2440			2445
Ile Met Leu Ile Leu	Val Ser Leu Ala	Ala Val Val Val	Asn Pro Ser			
	2450		2455			2460
Val Lys Thr Val Arg	Glu Ala Gly Ile	Leu Ile Thr Ala	Ala Ala Val			
	2465		2470			2475
Thr Leu Trp Glu Asn	Gly Ala Ser Ser	Val Trp Asn Ala	Thr Thr Ala			
	2485		2490			2495
Ile Gly Leu Cys His	Ile Met Arg Gly	Gly Trp Leu Ser	Cys Leu Ser			
	2500		2505			2510
Ile Thr Trp Thr Leu	Ile Lys Asn Met	Glu Lys Pro Gly	Leu Lys Arg			
	2515		2520			2525

Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu  
 2530 2535 2540  
 Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile  
 2545 2550 2555 2560  
 Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn  
 2565 2570 2575  
 Val Thr Gly Gly His Ser Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 2580 2585 2590  
 Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 2595 2600 2605  
 Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 2610 2615 2620  
 Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
 2625 2630 2635 2640  
 Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser  
 2645 2650 2655  
 Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu  
 2660 2665 2670  
 Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg  
 2675 2680 2685  
 Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro  
 2690 2695 2700  
 Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile  
 2705 2710 2715 2720  
 Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg  
 2725 2730 2735  
 Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg  
 2740 2745 2750  
 Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu  
 2755 2760 2765  
 Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu  
 2770 2775 2780  
 Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu  
 2785 2790 2795 2800  
 Asn Ser Asp Thr Ser Lys Ile Asn Asn Arg Ile Glu Arg Leu Arg Arg  
 2805 2810 2815  
 Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr  
 2820 2825 2830  
 Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser  
 2835 2840 2845  
 Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr  
 2850 2855 2860  
 Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly  
 2865 2870 2875 2880  
 Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro  
 2885 2890 2895  
 Pro Glu Gly Ala Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp  
 2900 2905 2910  
 Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu  
 2915 2920 2925  
 Phe Ile Arg Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu  
 2930 2935 2940  
 Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys  
 2945 2950 2955 2960  
 Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu  
 2965 2970 2975  
 Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro

2980					2985					2990						
Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Phe	Met	Trp	
2995					3000					3005						
Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn	Glu	
3010					3015					3020						
Asp	His	Trp	Leu	Gly	Arg	Lys	Asn	Ser	Gly	Gly	Gly	Val	Glu	Gly	Leu	
3025					3030					3035					3040	
Gly	Leu	Gln	Lys	Leu	Gly	Tyr	Ile	Leu	Arg	Glu	Val	Gly	Thr	Arg	Pro	
3045					3050					3055						
Gly	Gly	Lys	Ile	Tyr	Ala	Asp	Asp	Thr	Ala	Gly	Trp	Asp	Thr	Arg	Ile	
3060					3065					3070						
Thr	Arg	Ala	Asp	Leu	Glu	Asn	Glu	Ala	Lys	Val	Leu	Glu	Leu	Leu	Asp	
3075					3080					3085						
Gly	Glu	His	Arg	Arg	Leu	Ala	Arg	Ala	Ile	Ile	Glu	Leu	Thr	Tyr	Arg	
3090					3095					3100						
His	Lys	Val	Val	Lys	Val	Met	Arg	Pro	Ala	Ala	Asp	Gly	Arg	Thr	Val	
3105					3110					3115					3120	
Met	Asp	Val	Ile	Ser	Arg	Glu	Asp	Gln	Arg	Gly	Ser	Gly	Gln	Val	Val	
3125					3130					3135						
Thr	Tyr	Ala	Leu	Asn	Thr	Phe	Thr	Asn	Leu	Ala	Val	Gln	Leu	Val	Arg	
3140					3145					3150						
Met	Met	Glu	Gly	Glu	Gly	Val	Ile	Gly	Pro	Asp	Asp	Val	Glu	Lys	Leu	
3155					3160					3165						
Thr	Lys	Gly	Lys	Gly	Pro	Lys	Val	Arg	Thr	Trp	Leu	Phe	Glu	Asn	Gly	
3170					3175					3180						
Glu	Glu	Arg	Leu	Ser	Arg	Met	Ala	Val	Ser	Gly	Asp	Asp	Cys	Val	Val	
3185					3190					3195					3200	
Lys	Pro	Leu	Asp	Asp	Arg	Phe	Ala	Thr	Ser	Leu	His	Phe	Leu	Asn	Ala	
3205					3210					3215						
Met	Ser	Lys	Val	Arg	Lys	Asp	Ile	Gln	Glu	Trp	Lys	Pro	Ser	Thr	Gly	
3220					3225					3230						
Trp	Tyr	Asp	Trp	Gln	Gln	Val	Pro	Phe	Cys	Ser	Asn	His	Phe	Thr	Glu	
3235					3240					3245						
Leu	Ile	Met	Lys	Asp	Gly	Arg	Thr	Leu	Val	Val	Pro	Cys	Arg	Gly	Gln	
3250					3255					3260						
Asp	Glu	Leu	Val	Gly	Arg	Ala	Arg	Ile	Ser	Pro	Gly	Ala	Gly	Trp	Asn	
3265					3270					3275					3280	
Val	Arg	Asp	Thr	Ala	Cys	Leu	Ala	Lys	Ser	Tyr	Ala	Gln	Met	Trp	Leu	
3285					3290					3295						
Leu	Leu	Tyr	Phe	His	Arg	Arg	Asp	Leu	Arg	Leu	Met	Ala	Asn	Ala	Ile	
3300					3305					3310						
Cys	Ser	Ala	Val	Pro	Val	Asn	Trp	Val	Pro	Thr	Gly	Arg	Thr	Thr	Trp	
3315					3320					3325						
Ser	Ile	His	Ala	Gly	Gly	Glu	Trp	Met	Thr	Thr	Glu	Asp	Met	Leu	Glu	
3330					3335					3340						
Val	Trp	Asn	Arg	Val	Trp	Ile	Glu	Glu	Asn	Glu	Trp	Met	Glu	Asp	Lys	
3345					3350					3355					3360	
Thr	Pro	Val	Glu	Lys	Trp	Ser	Asp	Val	Pro	Tyr	Ser	Gly	Lys	Arg	Glu	
3365					3370					3375						
Asp	Ile	Trp	Cys	Gly	Ser	Leu	Ile	Gly	Thr	Arg	Ala	Arg	Ala	Thr	Trp	
3380					3385					3390						
Ala	Glu	Asn	Ile	Gln	Val	Ala	Ile	Asn	Gln	Val	Arg	Ala	Ile	Ile	Gly	
3395					3400					3405						
Asp	Glu	Lys	Tyr	Val	Asp	Tyr	Met	Ser	Ser	Leu	Lys	Arg	Tyr	Glu	Asp	
3410					3415					3420						
Thr	Thr	Leu	Val	Glu	Asp	Thr	Val	Leu								
3425					3430											

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Met 1	Ser	Lys	Lys	Pro 5	Gly	Gly	Pro	Gly	Lys 10	Ser	Arg	Ala	Val	Asn 15	Met
Leu	Lys	Arg	Gly 20	Met	Pro	Arg	Val	Leu	Ser	Leu	Ile	Gly	Leu 30	Lys	Arg
Ala	Met	Leu	Ser	Leu	Ile	Asp	Gly 40	Lys	Gly	Pro	Ile	Arg	Phe	Val	Leu
Ala	Leu	Leu	Ala	Phe	Phe	Arg	Phe	Thr	Ala	Ile	Ala	Pro	Thr	Arg	Ala
Val 65	Leu	Asp	Arg	Trp	Arg	Gly	Val	Asn	Lys	Gln	Thr	Ala	Met	Lys	His 80
Leu	Leu	Ser	Phe	Lys 85	Lys	Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn
Arg	Arg	Ser	Ser	Lys	Gln	Lys	Lys	Arg 105	Gly	Gly	Lys	Thr	Gly	Ile	Ala
Val	Met	Ile	Gly	Leu	Ile	Ala	Ser	Val	Gly	Ala	Val	Thr	Leu	Ser	Asn
Phe	Gln	Gly	Lys	Val	Met	Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp
Val 145	Ile	Thr	Ile	Pro	Thr	Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg 160
Ala	Met	Asp	Val	Gly 165	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu	Cys
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu
Ser 225	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala 240
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Val	Ala	Pro	Ala	
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly
Val 305	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys 320
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln
Gly 385	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	LEU	Phe	Gly	Lys 400
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Glu





Ala Thr Thr Glu Lys Leu Glu Ile Gly Trp Lys Ala Trp Gly Lys Ser  
 900 905 910  
 Ile Leu Phe Ala Pro Glu Leu Ala Asn Asn Thr Phe Val Val Asp Gly  
 915 920 925  
 Pro Glu Thr Lys Glu Cys Pro Thr Gln Asn Arg Ala Trp Asn Ser Leu  
 930 935 940  
 Glu Val Glu Asp Phe Gly Phe Gly Leu Thr Ser Thr Arg Met Phe Leu  
 945 950 955 960  
 Lys Val Arg Glu Ser Asn Thr Thr Glu Cys Asp Ser Lys Ile Ile Gly  
 965 970 975  
 Thr Ala Val Lys Asn Asn Leu Ala Ile His Ser Asp Leu Ser Tyr Trp  
 980 985 990  
 Ile Glu Ser Arg Leu Asn Asp Thr Trp Lys Leu Glu Arg Ala Val Leu  
 995 1000 1005  
 Gly Glu Val Lys Ser Cys Thr Trp Pro Glu Thr His Thr Leu Trp Gly  
 1010 1015 1020  
 Asp Gly Ile Leu Glu Ser Asp Leu Ile Ile Pro Val Thr Leu Ala Gly  
 1025 1030 1035 1040  
 Pro Arg Ser Asn His Asn Arg Arg Pro Gly Tyr Lys Thr Gln Asn Gln  
 1045 1050 1055  
 Gly Pro Trp Asp Glu Gly Arg Val Glu Ile Asp Phe Asp Tyr Cys Pro  
 1060 1065 1070  
 Gly Thr Thr Val Thr Leu Ser Glu Ser Cys Gly His Arg Gly Pro Ala  
 1075 1080 1085  
 Thr Arg Thr Thr Thr Glu Ser Gly Lys Leu Ile Thr Asp Trp Cys Cys  
 1090 1095 1100  
 Arg Ser Cys Thr Leu Pro Pro Leu Arg Tyr Gln Thr Asp Ser Gly Cys  
 1105 1110 1115 1120  
 Trp Tyr Gly Met Glu Ile Arg Pro Gln Arg His Asp Glu Lys Thr Leu  
 1125 1130 1135  
 Val Gln Ser Gln Val Asn Ala Tyr Asn Ala Asp Met Ile Asp Pro Phe  
 1140 1145 1150  
 Gln Leu Gly Leu Leu Val Val Phe Leu Ala Thr Gln Glu Val Leu Arg  
 1155 1160 1165  
 Lys Arg Trp Thr Ala Lys Ile Ser Leu Pro Ala Ile Leu Ile Ala Leu  
 1170 1175 1180  
 Leu Val Leu Val Phe Gly Gly Ile Thr Tyr Thr Asp Val Leu Arg Tyr  
 1185 1190 1195 1200  
 Val Ile Leu Val Gly Ala Ala Phe Ala Glu Ser Asn Ser Gly Gly Asp  
 1205 1210 1215  
 Val Val His Leu Ala Leu Met Ala Thr Phe Lys Ile Gln Pro Val Phe  
 1220 1225 1230  
 Met Val Ala Ser Phe Leu Lys Ala Arg Trp Thr Asn Gln Glu Asn Ile  
 1235 1240 1245  
 Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala  
 1250 1255 1260  
 Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala  
 1265 1270 1275 1280  
 Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn  
 1285 1290 1295  
 Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Gly Leu Arg Cys Leu  
 1300 1305 1310  
 Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser  
 1315 1320 1325  
 Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser  
 1330 1335 1340  
 Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile

1345		1350		1355		1360
Leu Ala Ala Gly	Leu Ile Ala Cys Asp	Pro Asn Arg Lys Arg	Gly Trp			
	1365	1370	1375			
Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val						
	1380	1385	1390			
Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr						
	1395	1400	1405			
Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr						
	1410	1415	1420			
Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala						
	1425	1430	1435			1440
Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp						
	1445	1450	1455			
Gly Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp						
	1460	1465	1470			
Met Leu Arg Met Val Cys Leu Ala Ile Ser Ala Tyr Thr Pro Trp Ala						
	1475	1480	1485			
Ile Leu Pro Ser Val Val Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys						
	1490	1495	1500			
Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys						
	1505	1510	1515			1520
Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu						
	1525	1530	1535			
Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His						
	1540	1545	1550			
Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly						
	1555	1560	1565			
Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr						
	1570	1575	1580			
Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val						
	1585	1590	1595			1600
Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr						
	1605	1610	1615			
Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr						
	1620	1625	1630			
Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn						
	1635	1640	1645			
Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly						
	1650	1655	1660			
Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile						
	1665	1670	1675			1680
Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val						
	1685	1690	1695			
Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln						
	1700	1705	1710			
Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala						
	1715	1720	1725			
Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu						
	1730	1735	1740			
Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn						
	1745	1750	1755			1760
Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met						
	1765	1770	1775			
Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala						
	1780	1785	1790			
His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr						
	1795	1800	1805			

Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro  
 1810 1815 1820  
 Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp  
 1825 1830 1835 1840  
 Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp  
 1845 1850 1855  
 Ile Thr Glu Tyr Thr Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys  
 1860 1865 1870  
 Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val  
 1875 1880 1885  
 Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys  
 1890 1895 1900  
 Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly  
 1905 1910 1915 1920  
 Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys  
 1925 1930 1935  
 Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro  
 1940 1945 1950  
 Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly  
 1955 1960 1965  
 Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr  
 1970 1975 1980  
 Asn Glu Asp Asp Ser Asn Phe Ala His Trp Thr Glu Ala Arg Ile Met  
 1985 1990 1995 2000  
 Leu Asp Asn Ile Asn Met Pro Asn Gly Leu Ile Ala Gln Phe Tyr Gln  
 2005 2010 2015  
 Pro Glu Arg Glu Lys Val Tyr Thr Met Asp Gly Glu Tyr Arg Leu Arg  
 2020 2025 2030  
 Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu  
 2035 2040 2045  
 Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Ser Tyr His  
 2050 2055 2060  
 Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu  
 2065 2070 2075 2080  
 Asp Asn Asn Glu Val Glu Val Ile Thr Lys Leu Gly Glu Arg Lys Ile  
 2085 2090 2095  
 Leu Arg Pro Arg Trp Ile Asp Ala Arg Val Tyr Ser Asp His Gln Ala  
 2100 2105 2110  
 Leu Lys Ala Phe Lys Asp Phe Ala Ser Gly Lys Arg Ser Gln Ile Gly  
 2115 2120 2125  
 Leu Ile Glu Val Leu Gly Lys Met Pro Glu His Phe Met Gly Lys Thr  
 2130 2135 2140  
 Trp Glu Ala Leu Asp Thr Met Tyr Val Val Ala Thr Ala Glu Lys Gly  
 2145 2150 2155 2160  
 Gly Arg Ala His Arg Met Ala Leu Glu Glu Leu Pro Asp Ala Leu Gln  
 2165 2170 2175  
 Thr Ile Ala Leu Ile Ala Leu Leu Ser Val Met Thr Met Gly Val Phe  
 2180 2185 2190  
 Phe Leu Leu Met Gln Arg Lys Gly Ile Gly Lys Ile Gly Leu Gly Gly  
 2195 2200 2205  
 Ala Val Leu Gly Val Ala Thr Phe Phe Cys Trp Met Ala Glu Val Pro  
 2210 2215 2220  
 Gly Thr Lys Ile Ala Gly Met Leu Leu Leu Ser Leu Leu Leu Met Ile  
 2225 2230 2235 2240  
 Val Leu Ile Pro Glu Pro Glu Lys Gln Arg Ser Gln Thr Asp Asn Gln  
 2245 2250 2255  
 Leu Ala Val Phe Leu Ile Cys Val Met Thr Leu Val Ser Ala Val Ala



Glu	Lys	Met	Glu	Leu	Leu	Gln	Arg	Arg	Tyr	Gly	Gly	Gly	Leu	Val	Arg	
				2725					2730						2735	
Asn	Pro	Leu	Ser	Arg	Asn	Ser	Thr	His	Glu	Met	Tyr	Trp	Val	Ser	Arg	
				2740					2745						2750	
Ala	Ser	Gly	Asn	Val	Val	His	Ser	Val	Asn	Met	Thr	Ser	Gln	Val	Leu	
				2755					2760						2765	
Leu	Gly	Arg	Met	Glu	Lys	Arg	Thr	Trp	Lys	Gly	Pro	Gln	Tyr	Glu	Glu	
				2770					2775						2780	
Asp	Val	Asn	Leu	Gly	Ser	Gly	Thr	Arg	Ala	Val	Gly	Lys	Pro	Leu	Leu	
2785					2790					2795					2800	
Asn	Ser	Asp	Thr	Ser	Lys	Ile	Lys	Asn	Arg	Ile	Glu	Arg	Leu	Arg	Arg	
					2805				2810						2815	
Glu	Tyr	Ser	Ser	Thr	Trp	His	His	Asp	Glu	Asn	His	Pro	Tyr	Arg	Thr	
				2820					2825						2830	
Trp	Asn	Tyr	His	Gly	Ser	Tyr	Asp	Val	Lys	Pro	Thr	Gly	Ser	Ala	Ser	
				2835					2840						2845	
Ser	Leu	Val	Asn	Gly	Val	Val	Arg	Leu	Leu	Ser	Lys	Pro	Trp	Asp	Thr	
				2850					2855						2860	
Ile	Thr	Asn	Val	Thr	Thr	Met	Ala	Met	Thr	Asp	Thr	Thr	Pro	Phe	Gly	
2865					2870					2875					2880	
Gln	Gln	Arg	Val	Phe	Lys	Glu	Lys	Val	Asp	Thr	Lys	Ala	Pro	Glu	Pro	
					2885				2890						2895	
Pro	Glu	Gly	Val	Lys	Tyr	Val	Leu	Asn	Glu	Thr	Thr	Asn	Trp	Leu	Trp	
				2900					2905						2910	
Ala	Phe	Leu	Ala	Arg	Glu	Lys	Arg	Pro	Arg	Met	Cys	Ser	Arg	Glu	Glu	
				2915					2920						2925	
Phe	Ile	Arg	Lys	Val	Asn	Ser	Asn	Ala	Ala	Leu	Gly	Ala	Met	Phe	Glu	
				2930					2935						2940	
Glu	Gln	Asn	Gln	Trp	Arg	Ser	Ala	Arg	Glu	Ala	Val	Glu	Asp	Pro	Lys	
2945					2950					2955					2960	
Phe	Trp	Glu	Met	Val	Asp	Glu	Glu	Arg	Glu	Ala	His	Leu	Arg	Gly	Glu	
					2965				2970						2975	
Cys	His	Thr	Cys	Ile	Tyr	Asn	Met	Met	Gly	Lys	Arg	Glu	Lys	Lys	Pro	
				2980					2985						2990	
Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Phe	Met	Trp	
				2995					3000						3005	
Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn	Glu	
				3010					3015						3020	
Asp	His	Trp	Leu	Gly	Arg	Lys	Asn	Ser	Gly	Gly	Gly	Val	Glu	Gly	Leu	
3025					3030					3035					3040	
Gly	Leu	Gln	Lys	Leu	Gly	Tyr	Ile	Leu	Arg	Glu	Val	Gly	Thr	Arg	Pro	
					3045				3050						3055	
Gly	Gly	Lys	Ile	Tyr	Ala	Asp	Asp	Thr	Ala	Gly	Trp	Asp	Thr	Arg	Ile	
				3060					3065						3070	
Thr	Arg	Ala	Asp	Leu	Glu	Asn	Glu	Ala	Lys	Val	Leu	Glu	Leu	Leu	Asp	
				3075					3080						3085	
Gly	Glu	His	Arg	Arg	Leu	Ala	Arg	Ala	Ile	Ile	Glu	Leu	Thr	Tyr	Arg	
				3090					3095						3100	
His	Lys	Val	Val	Lys	Val	Met	Arg	Pro	Ala	Ala	Asp	Gly	Arg	Thr	Val	
3105					3110					3115					3120	
Met	Asp	Val	Ile	Ser	Arg	Glu	Asp	Gln	Arg	Gly	Ser	Gly	Gln	Val	Val	
					3125				3130						3135	
Thr	Tyr	Ala	Leu	Asn	Thr	Phe	Thr	Asn	Leu	Ala	Val	Gln	Leu	Val	Arg	
				3140					3145						3150	
Met	Met	Glu	Gly	Glu	Gly	Val	Ile	Gly	Pro	Asp	Asp	Val	Glu	Lys	Leu	
				3155					3160						3165	
Thr	Lys	Gly	Lys	Gly	Pro	Lys	Val	Arg	Thr	Trp	Leu	Phe	Glu	Asn	Gly	

3170	3175	3180
Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val		
3185	3190	3195
Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala		3200
	3205	3210
Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly		3215
	3220	3225
Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu		3230
	3235	3240
Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln		3245
	3250	3255
Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn		3260
3265	3270	3275
Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu		3280
	3285	3290
Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile		3295
	3300	3305
Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp		3310
	3315	3320
Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu		3325
	3330	3335
Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys		3340
3345	3350	3355
Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu		3360
	3365	3370
Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp		3375
	3380	3385
Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly		3390
	3395	3400
Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp		3405
	3410	3415
Thr Thr Leu Val Glu Asp Thr Val Leu		3420
3425	3430	

# West Nile Virus - AF404754

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met
1 5 10 15
Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg
20 25 30
Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu
35 40 45
Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala
50 55 60
Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His
65 70 75 80
Leu Leu Ser Phe Lys Lys Glu Leu Gly Thr Leu Thr Ser Ala Ile Asn
85 90 95
Arg Arg Ser Ser Lys Glu Lys Lys Arg Gly Gly Lys Thr Gly Ile Ala
100 105 110
Val Met Ile Gly Leu Ile Ala Ser Val Gly Ala Val Thr Leu Ser Asn
115 120 125
Phe Gln Gly Lys Val Met Met Thr Val Asn Ala Thr Asp Val Thr Asp
130 135 140
Val Ile Thr Ile Pro Thr Ala Ala Gly Lys Asn Leu Cys Ile Val Arg
145 150 155 160
Ala Met Asp Val Gly Tyr Met Cys Asp Asp Thr Ile Thr Tyr Glu Cys

				165					170					175			
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys		
			180					185					190				
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg		
		195					200					205					
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu		
	210					215					220						
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala		
225					230					235					240		
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly		
			245						250					255			
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr		
		260						265					270				
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala		
	275						280					285					
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly		
	290					295					300						
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys		
305					310					315					320		
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met		
			325					330						335			
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu		
		340					345					350					
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly		
	355						360					365					
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln		
	370					375					380						
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly	Lys		
385					390					395					400		
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile		
			405					410					415				
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe		
		420					425					430					
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln		
	435						440					445					
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro		
	450					455					460						
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys		
465					470					475					480		
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val		
			485					490					495				
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn		
		500					505					510					
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr		
	515						520					525					
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala		
	530					535					540						
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile		
545					550					555					560		
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu		
			565					570					575				
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr		
		580					585					590					
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	<b>ALA</b>	Asp	Thr		
	595					600					605						
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly		
	610					615					620						

Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr
625					630					635					640
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr
				645					650					655	
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser
			660					665					670		
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His
		675					680					685			
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly
	690					695					700				
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	<b>LYS</b>	Ala	Val	His	Gln	Val	Phe
				725					730					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
		755					760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770					775					780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val
				805					810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
		835					840					845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr
				885					890					895	
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
			900					905					910		
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly
		915					920					925			
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu
	930					935					940				
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu
945					950					955					960
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly
				965					970					975	
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp
			980					985					990		
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu
		995					1000					1005			
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly
	1010					1015					1020				
Asp	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly
1025					1030					1035					1040
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln
				1045					1050					1055	
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro
			1060					1065					1070		
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala





Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His  
 1540 1545 1550  
 Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly  
 1555 1560 1565  
 Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr  
 1570 1575 1580  
 Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val  
 1585 1590 1595 1600  
 Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr  
 1605 1610 1615  
 Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr  
 1620 1625 1630  
 Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln  
 1700 1705 1710  
 Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala  
 1715 1720 1725  
 Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu  
 1730 1735 1740  
 Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn  
 1745 1750 1755 1760  
 Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met  
 1765 1770 1775  
 Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala  
 1780 1785 1790  
 His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr  
 1795 1800 1805  
 Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro  
 1810 1815 1820  
 Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp  
 1825 1830 1835 1840  
 Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp  
 1845 1850 1855  
 Ile Thr Glu Tyr Thr Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys  
 1860 1865 1870  
 Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val  
 1875 1880 1885  
 Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys  
 1890 1895 1900  
 Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly  
 1905 1910 1915 1920  
 Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys  
 1925 1930 1935  
 Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro  
 1940 1945 1950  
 Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly  
 1955 1960 1965  
 Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr  
 1970 1975 1980  
 Asn Glu Asp Asp Ser Asn Phe Ala His Trp Thr Glu Ala Arg Ile Met

1985		1990		1995		2000
Leu Asp Asn Ile	Asn Met Pro Asn Gly	Leu Ile Ala Gln Phe Tyr Gln				
	2005	2010			2015	
Pro Glu Arg Glu Lys Val Tyr Thr	Met Asp Gly Glu Tyr Arg Leu Arg					
	2020	2025			2030	
Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu						
	2035	2040			2045	
Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Ser Tyr His						
	2050	2055			2060	
Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu						
2065	2070	2075			2080	
Asp Asn Asn Glu Val Glu Val Ile Thr Lys Leu Gly Glu Arg Lys Ile						
	2085	2090			2095	
Leu Arg Pro Arg Trp Ile Asp Ala Arg Val Tyr Ser Asp His Gln Ala						
	2100	2105			2110	
Leu Lys Ala Phe Lys Asp Phe Ala Ser Gly Lys Arg Ser Gln Ile Gly						
	2115	2120			2125	
Leu Ile Glu Val Leu Gly Lys Met Pro Glu His Phe Met Gly Lys Thr						
	2130	2135			2140	
Trp Glu Ala Leu Asp Thr Met Tyr Val Val Ala Thr Ala Glu Lys Gly						
2145	2150	2155			2160	
Gly Arg Ala His Arg Met Ala Leu Glu Glu Leu Pro Asp Ala Leu Gln						
	2165	2170			2175	
Thr Ile Ala Leu Ile Ala Leu Leu Ser Val Met Thr Met Gly Val Phe						
	2180	2185			2190	
Phe Leu Leu Met Gln Arg Lys Gly Ile Gly Lys Ile Gly Leu Gly Gly						
	2195	2200			2205	
Ala Val Leu Gly Val Ala Thr Phe Phe Cys Trp Met Ala Glu Val Pro						
	2210	2215			2220	
Gly Thr Lys Ile Ala Gly Met Leu Leu Leu Ser Leu Leu Leu Met Ile						
2225	2230	2235			2240	
Val Leu Ile Pro Glu Pro Glu Lys Gln Arg Ser Gln Thr Asp Asn Gln						
	2245	2250			2255	
Leu Ala Val Phe Leu Ile Cys Val Met Thr Leu Val Ser Ala Val Ala						
	2260	2265			2270	
Ala Asn Glu Met Gly Trp Leu Asp Lys Thr Lys Ser Asp Ile Ser Ser						
	2275	2280			2285	
Leu Phe Gly Gln Arg Ile Glu Val Lys Glu Asn Phe Ser Met Gly Glu						
	2290	2295			2300	
Phe Leu Leu Asp Leu Arg Pro Ala Thr Ala Trp Ser Leu Tyr Ala Val						
2305	2310	2315			2320	
Thr Thr Ala Val Leu Thr Pro Leu Leu Lys His Leu Ile Thr Ser Asp						
	2325	2330			2335	
Tyr Ile Asn Thr Ser Leu Thr Ser Ile Asn Val Gln Ala Ser Ala Leu						
	2340	2345			2350	
Phe Thr Leu Ala Arg Gly Phe Pro Phe Val Asp Val Gly Val Ser Ala						
	2355	2360			2365	
Leu Leu Leu Ala Ala Gly Cys Trp Gly Gln Val Thr Leu Thr Val Thr						
	2370	2375			2380	
Val Thr Ala Ala Thr Leu Leu Phe Cys His Tyr Ala Tyr Met Val Pro						
2385	2390	2395			2400	
Gly Trp Gln Ala Glu Ala Met Arg Ser Ala Gln Arg Arg Thr Ala Ala						
	2405	2410			2415	
Gly Ile Met Lys Asn Ala Val Val Asp Gly Ile Val Ala Thr Asp Val						
	2420	2425			2430	
Pro Glu Leu Glu Arg Thr Thr Pro Ile Met Gln Lys Lys Val Gly Gln						
	2435	2440			2445	

Ile Met Leu Ile Leu Val Ser Leu Ala Ala Val Val Val Asn Pro Ser  
 2450 2455 2460  
 Val Lys Thr Val Arg Glu Ala Gly Ile Leu Ile Thr Ala Ala Ala Val  
 2465 2470 2475 2480  
 Thr Leu Trp Glu Asn Gly Ala Ser Ser Val Trp Asn Ala Thr Thr Ala  
 2485 2490 2495  
 Ile Gly Leu Cys His Ile Met Arg Gly Gly Trp Leu Ser Cys Leu Ser  
 2500 2505 2510  
 Ile Thr Trp Thr Leu Ile Lys Asn Met Glu Lys Pro Gly Leu Lys Arg  
 2515 2520 2525  
 Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu  
 2530 2535 2540  
 Asn Gln Met Thr Lys Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile  
 2545 2550 2555 2560  
 Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn  
 2565 2570 2575  
 Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 2580 2585 2590  
 Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 2595 2600 2605  
 Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 2610 2615 2620  
 Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
 2625 2630 2635 2640  
 Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser  
 2645 2650 2655  
 Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu  
 2660 2665 2670  
 Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg  
 2675 2680 2685  
 Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro  
 2690 2695 2700  
 Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile  
 2705 2710 2715 2720  
 Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg  
 2725 2730 2735  
 Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg  
 2740 2745 2750  
 Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu  
 2755 2760 2765  
 Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu  
 2770 2775 2780  
 Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu  
 2785 2790 2795 2800  
 Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg  
 2805 2810 2815  
 Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr  
 2820 2825 2830  
 Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser  
 2835 2840 2845  
 Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr  
 2850 2855 2860  
 Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly  
 2865 2870 2875 2880  
 Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro  
 2885 2890 2895  
 Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp



Thr	Pro	Val	Glu	Lys	Trp	Ser	Asp	Val	Pro	Tyr	Ser	Gly	Lys	Arg	Glu			
				3365					3370					3375				
Asp	Ile	Trp	Cys	Gly	Ser	Leu	Ile	Gly	Thr	Arg	Ala	Arg	Ala	Thr	Trp			
			3380					3385					3390					
Ala	Glu	Asn	Ile	Gln	Val	Ala	Ile	Asn	Gln	Val	Arg	Ala	Ile	Ile	Gly			
		3395					3400					3405						
Asp	Glu	Lys	Tyr	Val	Asp	Tyr	Met	Ser	Ser	Leu	Lys	Arg	Tyr	Glu	Asp			
	3410					3415					3420							
Thr	Thr	Leu	Val	Glu	Asp	Thr	Val	Leu										
3425					3430													

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Met	Ser	Lys	Lys	Pro	Gly	Gly	Pro	Gly	Lys	Ser	Arg	Ala	Val	Asn	Met			
1				5					10					15				
Leu	Lys	Arg	Gly	Met	Pro	Arg	Val	Leu	Ser	Leu	Ile	Gly	Leu	Lys	Arg			
			20					25					30					
Ala	Met	Leu	Ser	Leu	Ile	Asp	Gly	Lys	Gly	Pro	Ile	Arg	Phe	Val	Leu			
	35						40					45						
Ala	Leu	Leu	Ala	Phe	Phe	Arg	Phe	Thr	Ala	Ile	Ala	Pro	Thr	Arg	Ala			
	50					55					60							
Val	Leu	Asp	Arg	Trp	Arg	Gly	Val	Asn	Lys	Gln	Thr	Ala	Met	Lys	His			
65					70				75					80				
Leu	Leu	Ser	Phe	Lys	Lys	Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn			
				85				90					95					
Arg	Arg	Ser	Ser	Lys	Gln	Lys	Lys	Arg	Gly	Gly	Lys	Thr	Gly	Ile	Ala			
		100						105					110					
Val	Met	Ile	Gly	Leu	Ile	Ala	Ser	Val	Gly	Ala	Val	Thr	Leu	Ser	Asn			
	115						120					125						
Phe	Gln	Gly	Lys	Val	Met	Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp			
	130					135					140							
Val	Ile	Thr	Ile	Pro	Thr	Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg			
145					150					155					160			
Ala	Met	Asp	Val	Gly	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu	Cys			
			165					170						175				
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys			
		180						185					190					
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg			
	195						200					205						
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu			
	210					215					220							
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala			
225					230					235					240			
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly			
			245						250					255				
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr			
	260							265					270					
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala			
	275						280						285					
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly			
	290					295					300							
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys			
305					310					315					320			
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met			
			325						330					335				
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu			
		340						345					350					

Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly
		355					360					365			
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln
		370					375					380			
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly	Lys
385					390					395					400
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile
				405					410					415	
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe
			420					425					430		
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln
		435					440					445			
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro
		450					455					460			
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys
465					470					475					480
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val
				485					490					495	
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn
				500				505					510		
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr
		515					520					525			
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala
		530					535				540				
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile
545					550					555					560
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu
				565					570					575	
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr
			580					585					590		
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	<b>ALA</b>	Asp	Thr
		595					600					605			
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly
		610				615						620			
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr
625					630					635					640
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr
				645					650					655	
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser
			660					665					670		
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His
			675				680					685			
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly
		690				695						700			
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser
705					710					715					720
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	<b>LYS</b>	Ala	Val	His	Gln	Val	Phe
				725					730					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
		755					760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
		770				775					780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val

				805					810					815			
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly		
			820					825					830				
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu		
		835					840					845					
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp		
	850					855					860						
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val		
865					870					875					880		
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr		
			885						890					895			
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser		
			900					905					910				
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly		
		915					920					925					
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu		
	930					935					940						
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu		
945					950					955					960		
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly		
			965						970					975			
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp		
			980					985					990				
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu		
		995				1000						1005					
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly		
	1010					1015					1020						
Asp	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly		
1025					1030					1035					1040		
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln		
			1045						1050					1055			
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro		
			1060					1065					1070				
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala		
		1075					1080					1085					
Thr	Arg	Thr	Thr	Thr	Glu	Ser	Gly	Lys	Leu	Ile	Thr	Asp	Trp	Cys	Cys		
	1090					1095					1100						
Arg	Ser	Cys	Thr	Leu	Pro	Pro	Leu	Arg	Tyr	Gln	Thr	Asp	Ser	Gly	Cys		
1105					1110					1115					1120		
Trp	Tyr	Gly	Met	Glu	Ile	Arg	Pro	Gln	Arg	His	Asp	Glu	Lys	Thr	Leu		
			1125						1130						1135		
Val	Gln	Ser	Gln	Val	Asn	Ala	Tyr	Asn	Ala	Asp	Met	Ile	Asp	Pro	Phe		
			1140					1145					1150				
Gln	Leu	Gly	Leu	Leu	Val	Val	Phe	Leu	Ala	Thr	Gln	Glu	Val	Leu	Arg		
		1155					1160					1165					
Lys	Arg	Trp	Thr	Ala	Lys	Ile	Ser	Met	Pro	Ala	Ile	Leu	Ile	Ala	Leu		
	1170					1175					1180						
Leu	Val	Leu	Val	Phe	Gly	Ile	Thr	Tyr	Thr	Asp	Val	Leu	Arg	Tyr			
1185					1190				1195					1200			
Val	Ile	Leu	Val	Gly	Ala	Ala	Phe	Ala	Glu	Ser	Asn	Ser	Gly	Gly	Asp		
			1205					1210						1215			
Val	Val	His	Leu	Ala	Leu	Met	Ala	Thr	Phe	Lys	Ile	Gln	Pro	Val	Phe		
			1220				1225					1230					
Met	Val	Ala	Ser	Phe	Leu	Lys	Ala	Arg	Trp	Thr	Asn	Gln	Glu	Asn	Ile		
	1235						1240					1245					
Leu	Leu	Met	Leu	Ala	Ala	Val	Phe	Phe	Gln	Met	Ala	Tyr	His	Asp	Ala		
	1250					1255					1260						



Arg	Gln	Ile	Leu	Leu	Trp	Glu	Ile	Pro	Asp	Val	Leu	Asn	Ser	Leu	Ala	1265	1270	1275	1280
Val	Ala	Trp	Met	Ile	Leu	Arg	Ala	Ile	Thr	Phe	Thr	Thr	Thr	Ser	Asn	1285	1290		1295
Val	Val	Val	Pro	Leu	Leu	Ala	Leu	Leu	Thr	Pro	Gly	Leu	Arg	Cys	Leu	1300	1305		1310
Asn	Leu	Asp	Val	Tyr	Arg	Ile	Leu	Leu	Leu	Met	Val	Gly	Ile	Gly	Ser	1315	1320		1325
Leu	Ile	Arg	Glu	Lys	Arg	Ser	Ala	Ala	Ala	Lys	Lys	Lys	Gly	Ala	Ser	1330	1335		1340
Leu	Leu	Cys	Leu	Ala	Leu	Ala	Ser	Thr	Gly	Leu	Phe	Asn	Pro	Met	Ile	1345	1350		1360
Leu	Ala	Ala	Gly	Leu	Ile	Ala	Cys	Asp	Pro	Asn	Arg	Lys	Arg	Gly	Trp	1365	1370		1375
Pro	Ala	Thr	Glu	Val	Met	Thr	Ala	Val	Gly	Leu	Met	Phe	Ala	Ile	Val	1380	1385		1390
Gly	Gly	Leu	Ala	Glu	Leu	Asp	Ile	Asp	Ser	Met	Ala	Ile	Pro	Met	Thr	1395	1400		1405
Ile	Ala	Gly	Leu	Met	Phe	Ala	Ala	Phe	Val	Ile	Ser	Gly	Lys	Ser	Thr	1410	1415		1420
Asp	Met	Trp	Ile	Glu	Arg	Thr	Ala	Asp	Ile	Ser	Trp	Glu	Ser	Asp	Ala	1425	1430		1440
Glu	Ile	Thr	Gly	Ser	Ser	Glu	Arg	Val	Asp	Val	Arg	Leu	Asp	Asp	Asp	1445	1450		1455
Gly	Asn	Phe	Gln	Leu	Met	Asn	Asp	Pro	Gly	Ala	Pro	Trp	Lys	Ile	Trp	1460	1465		1470
Met	Leu	Arg	Met	Val	Cys	Leu	Ala	Ile	Ser	Ala	Tyr	Thr	Pro	Trp	Ala	1475	1480		1485
Ile	Leu	Pro	Ser	Val	Val	Gly	Phe	Trp	Ile	Thr	Leu	Gln	Tyr	Thr	Lys	1490	1495		1500
Arg	Gly	Gly	Val	Leu	Trp	Asp	Thr	Pro	Ser	Pro	Lys	Glu	Tyr	Lys	Lys	1505	1510		1520
Gly	Asp	Thr	Thr	Thr	Gly	Val	Tyr	Arg	Ile	Met	Thr	Arg	Gly	Leu	Leu	1525	1530		1535
Gly	Ser	Tyr	Gln	Ala	Gly	Ala	Gly	Val	Met	Val	Glu	Gly	Val	Phe	His	1540	1545		1550
Thr	Leu	Trp	His	Thr	Thr	Lys	Gly	Ala	Ala	Leu	Met	Ser	Gly	Glu	Gly	1555	1560		1565
Arg	Leu	Asp	Pro	Tyr	Trp	Gly	Ser	Val	Lys	Glu	Asp	Arg	Leu	Cys	Tyr	1570	1575		1580
Gly	Gly	Pro	Trp	Lys	Leu	Gln	His	Lys	Trp	Asn	Gly	Gln	Asp	Glu	Val	1585	1590		1600
Gln	Met	Ile	Val	Val	Glu	Pro	Gly	Lys	Asn	Val	Lys	Asn	Val	Gln	Thr	1605	1610		1615
Lys	Pro	Gly	Val	Phe	Lys	Thr	Pro	Glu	Gly	Glu	Ile	Gly	Ala	Val	Thr	1620	1625		1630
Leu	Asp	Phe	Pro	Thr	Gly	Thr	Ser	Gly	Ser	Pro	Ile	Val	Asp	Lys	Asn	1635	1640		1645
Gly	Asp	Val	Ile	Gly	Leu	Tyr	Gly	Asn	Gly	Val	Ile	Met	Pro	Asn	Gly	1650	1655		1660
Ser	Tyr	Ile	Ser	Ala	Ile	Val	Gln	Gly	Glu	Arg	Met	Asp	Glu	Pro	Ile	1665	1670		1680
Pro	Ala	Gly	Phe	Glu	Pro	Glu	Met	Leu	Arg	Lys	Lys	Gln	Ile	Thr	Val	1685	1690		1695
Leu	Asp	Leu	His	Pro	Gly	Ala	Gly	Lys	Thr	Arg	Arg	Ile	Leu	Pro	Gln	1700	1705		1710
Ile	Ile	Lys	Glu	Ala	Ile	Asn	Arg	Arg	Leu	Arg	Thr	Ala	Val	Leu	Ala				

1715	1720	1725
Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu		
1730	1735	1740
Pro Ile Arg Tyr Gln Thr Ser Ala Val Pro Arg Glu His Asn Gly Asn		
1745	1750	1755
Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met		
1765	1770	1775
Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala		
1780	1785	1790
His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr		
1795	1800	1805
Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro		
1810	1815	1820
Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp		
1825	1830	1835
Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp		
1845	1850	1855
Ile Thr Glu Tyr Thr Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys		
1860	1865	1870
Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val		
1875	1880	1885
Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys		
1890	1895	1900
Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly		
1905	1910	1915
Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys		
1925	1930	1935
Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro		
1940	1945	1950
Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly		
1955	1960	1965
Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr		
1970	1975	1980
Asn Glu Asp Asp Ser Asn Phe Ala His Trp Thr Glu Ala Arg Ile Met		
1985	1990	1995
Leu Asp Asn Ile Asn Met Pro Asn Gly Leu Ile Ala Gln Phe Tyr Gln		
2005	2010	2015
Pro Glu Arg Glu Lys Val Tyr Thr Met Asp Gly Glu Tyr Arg Leu Arg		
2020	2025	2030
Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu		
2035	2040	2045
Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Ser Tyr His		
2050	2055	2060
Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu		
2065	2070	2075
Asp Asn Asn Glu Val Glu Val Ile Thr Lys Leu Gly Glu Arg Lys Ile		
2085	2090	2095
Leu Arg Pro Arg Trp Ile Asp Ala Arg Val Tyr Ser Asp His Gln Ala		
2100	2105	2110
Leu Lys Ala Phe Lys Asp Phe Ala Ser Gly Lys Arg Ser Gln Ile Gly		
2115	2120	2125
Leu Ile Glu Val Leu Gly Lys Met Pro Glu His Phe Met Gly Lys Thr		
2130	2135	2140
Trp Glu Ala Leu Asp Thr Met Tyr Val Val Ala Thr Ala Glu Lys Gly		
2145	2150	2155
Gly Arg Ala His Arg Met Ala Leu Glu Glu Leu Pro Asp Ala Leu Gln		
2165	2170	2175

Thr Ile Ala Leu Ile Ala Leu Leu Ser Val Met Thr Met Gly Val Phe  
 2180 2185 2190  
 Phe Leu Leu Met Gln Arg Lys Gly Ile Gly Lys Ile Gly Leu Gly Gly  
 2195 2200 2205  
 Ala Val Leu Gly Val Ala Thr Phe Phe Cys Trp Met Ala Glu Val Pro  
 2210 2215 2220  
 Gly Thr Lys Ile Ala Gly Met Leu Leu Leu Ser Leu Leu Leu Met Ile  
 2225 2230 2235 2240  
 Val Leu Ile Pro Glu Pro Glu Lys Gln Arg Ser Gln Thr Asp Asn Gln  
 2245 2250 2255  
 Leu Ala Val Phe Leu Ile Cys Val Met Thr Leu Val Ser Ala Val Ala  
 2260 2265 2270  
 Ala Asn Glu Met Gly Trp Leu Asp Lys Thr Lys Ser Asp Ile Ser Ser  
 2275 2280 2285  
 Leu Phe Gly Gln Arg Ile Glu Val Lys Glu Asn Phe Ser Met Gly Glu  
 2290 2295 2300  
 Phe Leu Leu Asp Leu Arg Pro Ala Thr Ala Trp Ser Leu Tyr Ala Val  
 2305 2310 2315 2320  
 Thr Thr Ala Val Leu Thr Pro Leu Leu Lys His Leu Ile Thr Ser Asp  
 2325 2330 2335  
 Tyr Ile Asn Thr Ser Leu Thr Ser Ile Asn Val Gln Ala Ser Ala Leu  
 2340 2345 2350  
 Phe Thr Leu Ala Arg Gly Phe Pro Phe Val Asp Val Gly Val Ser Ala  
 2355 2360 2365  
 Leu Leu Leu Ala Ala Gly Cys Trp Gly Gln Val Thr Leu Thr Val Thr  
 2370 2375 2380  
 Val Thr Ala Ala Thr Leu Leu Phe Cys His Tyr Ala Tyr Met Val Pro  
 2385 2390 2395 2400  
 Gly Trp Gln Ala Glu Ala Met Arg Ser Ala Gln Arg Arg Thr Ala Ala  
 2405 2410 2415  
 Gly Ile Met Lys Asn Ala Val Val Asp Gly Ile Val Ala Thr Asp Val  
 2420 2425 2430  
 Pro Glu Leu Glu Arg Thr Thr Pro Ile Met Gln Lys Lys Val Gly Gln  
 2435 2440 2445  
 Ile Met Leu Ile Leu Val Ser Leu Ala Ala Val Val Val Asn Pro Ser  
 2450 2455 2460  
 Val Lys Thr Val Arg Glu Ala Gly Ile Leu Ile Thr Ala Ala Ala Val  
 2465 2470 2475 2480  
 Thr Leu Trp Glu Asn Gly Ala Ser Ser Val Trp Asn Ala Thr Thr Ala  
 2485 2490 2495  
 Ile Gly Leu Cys His Ile Met Arg Gly Gly Trp Leu Ser Cys Leu Ser  
 2500 2505 2510  
 Ile Thr Trp Thr Leu Ile Lys Asn Met Glu Lys Pro Gly Leu Lys Arg  
 2515 2520 2525  
 Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu  
 2530 2535 2540  
 Asn Gln Met Thr Lys Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile  
 2545 2550 2555 2560  
 Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn  
 2565 2570 2575  
 Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 2580 2585 2590  
 Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 2595 2600 2605  
 Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 2610 2615 2620  
 Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu



Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg  
 3090 3095 3100  
 His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val  
 3105 3110 3115 3120  
 Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val  
 3125 3130 3135  
 Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg  
 3140 3145 3150  
 Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu  
 3155 3160 3165  
 Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly  
 3170 3175 3180  
 Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val  
 3185 3190 3195 3200  
 Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala  
 3205 3210 3215  
 Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly  
 3220 3225 3230  
 Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu  
 3235 3240 3245  
 Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln  
 3250 3255 3260  
 Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn  
 3265 3270 3275 3280  
 Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu  
 3285 3290 3295  
 Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile  
 3300 3305 3310  
 Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp  
 3315 3320 3325  
 Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu  
 3330 3335 3340  
 Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys  
 3345 3350 3355 3360  
 Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu  
 3365 3370 3375  
 Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp  
 3380 3385 3390  
 Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly  
 3395 3400 3405  
 Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp  
 3410 3415 3420  
 Thr Thr Leu Val Glu Asp Thr Val Leu  
 3425 3430

**West Nile Virus - AF404756**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met  
 1 5 10 15  
 Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg  
 20 25 30  
 Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu  
 35 40 45  
 Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala  
 50 55 60  
 Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His  
 65 70 75 80

Leu	Leu	Ser	Phe	Lys	Lys	Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn	
				85					90					95		
Arg	Arg	Ser	Ser	Lys	Gln	Lys	Lys	Arg	Gly	Gly	Lys	Thr	Gly	Ile	Ala	
			100					105					110			
Val	Met	Ile	Gly	Leu	Ile	Ala	Ser	Val	Gly	Ala	Val	Thr	Leu	Ser	Asn	
		115					120					125				
Phe	Gln	Gly	Lys	Val	Met	Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp	
	130					135					140					
Val	Ile	Thr	Ile	Pro	Thr	Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg	
145					150					155					160	
Ala	Met	Asp	Val	Gly	Tyr	Met	Cys	Asp	Asp	Thr	Ile	Thr	Tyr	Glu	Cys	
			165					170						175		
Pro	Val	Leu	Ser	Ala	Gly	Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys	
			180					185					190			
Thr	Lys	Ser	Ala	Val	Tyr	Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg	
	195						200					205				
His	Ser	Arg	Arg	Ser	Arg	Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu	
	210					215					220					
Ser	Thr	Leu	Ala	Asn	Lys	Lys	Gly	Ala	Trp	Met	Asp	Ser	Thr	Lys	Ala	
225					230					235					240	
Thr	Arg	Tyr	Leu	Val	Lys	Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly	
			245					250						255		
Tyr	Ala	Leu	Val	Ala	Ala	Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr	
			260					265					270			
Met	Gln	Arg	Val	Val	Phe	Val	Val	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala	
		275					280					285				
Tyr	Ser	Phe	Asn	Cys	Leu	Gly	Met	Ser	Asn	Arg	Asp	Phe	Leu	Glu	Gly	
	290					295					300					
Val	Ser	Gly	Ala	Thr	Trp	Val	Asp	Leu	Val	Leu	Glu	Gly	Asp	Ser	Cys	
305					310					315					320	
Val	Thr	Ile	Met	Ser	Lys	Asp	Lys	Pro	Thr	Ile	Asp	Val	Lys	Met	Met	
			325						330					335		
Asn	Met	Glu	Ala	Ala	Asn	Leu	Ala	Glu	Val	Arg	Ser	Tyr	Cys	Tyr	Leu	
			340					345					350			
Ala	Thr	Val	Ser	Asp	Leu	Ser	Thr	Lys	Ala	Ala	Cys	Pro	Thr	Met	Gly	
		355					360					365				
Glu	Ala	His	Asn	Asp	Lys	Arg	Ala	Asp	Pro	Ala	Phe	Val	Cys	Arg	Gln	
	370					375					380					
Gly	Val	Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	<b>LEU</b>	Phe	Gly	Lys	
385					390					395					400	
Gly	Ser	Ile	Asp	Thr	Cys	Ala	Lys	Phe	Ala	Cys	Ser	Thr	Lys	Ala	Ile	
			405					410						415		
Gly	Arg	Thr	Ile	Leu	Lys	Glu	Asn	Ile	Lys	Tyr	Glu	Val	Ala	Ile	Phe	
			420					425					430			
Val	His	Gly	Pro	Thr	Thr	Val	Glu	Ser	His	Gly	Asn	Tyr	Ser	Thr	Gln	
	435						440					445				
Val	Gly	Ala	Thr	Gln	Ala	Gly	Arg	Phe	Ser	Ile	Thr	Pro	Ala	Ala	Pro	
	450					455					460					
Ser	Tyr	Thr	Leu	Lys	Leu	Gly	Glu	Tyr	Gly	Glu	Val	Thr	Val	Asp	Cys	
465					470					475					480	
Glu	Pro	Arg	Ser	Gly	Ile	Asp	Thr	Asn	Ala	Tyr	Tyr	Val	Met	Thr	Val	
			485					490						495		
Gly	Thr	Lys	Thr	Phe	Leu	Val	His	Arg	Glu	Trp	Phe	Met	Asp	Leu	Asn	
			500					505					510			
Leu	Pro	Trp	Ser	Ser	Ala	Gly	Ser	Thr	Val	Trp	Arg	Asn	Arg	Glu	Thr	
		515					520					525				
Leu	Met	Glu	Phe	Glu	Glu	Pro	His	Ala	Thr	Lys	Gln	Ser	Val	Ile	Ala	

530						535						540					
Leu	Gly	Ser	Gln	Glu	Gly	Ala	Leu	His	Gln	Ala	Leu	Ala	Gly	Ala	Ile		
545					550					555					560		
Pro	Val	Glu	Phe	Ser	Ser	Asn	Thr	Val	Lys	Leu	Thr	Ser	Gly	His	Leu		
				565					570					575			
Lys	Cys	Arg	Val	Lys	Met	Glu	Lys	Leu	Gln	Leu	Lys	Gly	Thr	Thr	Tyr		
			580				585						590				
Gly	Val	Cys	Ser	Lys	Ala	Phe	Lys	Phe	Leu	Gly	Thr	Pro	ALA	Asp	Thr		
	595						600					605					
Gly	His	Gly	Thr	Val	Val	Leu	Glu	Leu	Gln	Tyr	Thr	Gly	Thr	Asp	Gly		
610						615					620						
Pro	Cys	Lys	Val	Pro	Ile	Ser	Ser	Val	Ala	Ser	Leu	Asn	Asp	Leu	Thr		
625					630					635					640		
Pro	Val	Gly	Arg	Leu	Val	Thr	Val	Asn	Pro	Phe	Val	Ser	Val	Ala	Thr		
				645					650					655			
Ala	Asn	Ala	Lys	Val	Leu	Ile	Glu	Leu	Glu	Pro	Pro	Phe	Gly	Asp	Ser		
			660				665						670				
Tyr	Ile	Val	Val	Gly	Arg	Gly	Glu	Gln	Gln	Ile	Asn	His	His	Trp	His		
	675						680					685					
Lys	Ser	Gly	Ser	Ser	Ile	Gly	Lys	Ala	Phe	Thr	Thr	Thr	Leu	Lys	Gly		
	690					695						700					
Ala	Gln	Arg	Leu	Ala	Ala	Leu	Gly	Asp	Thr	Ala	Trp	Asp	Phe	Gly	Ser		
705					710					715					720		
Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	LYS	Ala	Val	His	Gln	Val	Phe		
			725					730						735			
Gly	Gly	Ala	Phe	Arg	Leu	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln		
		740						745					750				
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp		
	755						760					765					
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe		
	770					775					780						
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser		
785				790						795					800		
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val		
			805						810					815			
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly		
			820					825					830				
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu		
	835					840						845					
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ala	Val	Lys	Asp		
	850					855					860						
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val		
865				870					875						880		
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr		
			885						890					895			
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser		
	900							905					910				
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly		
	915					920						925					
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu		
	930					935					940						
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu		
945				950						955					960		
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly		
			965					970						975			
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp		
			980					985						990			

Ile Glu Ser Arg Leu Asn Asp Thr Trp Lys Leu Glu Arg Ala Val Leu  
995 1000 1005  
Gly Glu Val Lys Ser Cys Thr Trp Pro Glu Thr His Thr Leu Trp Gly  
1010 1015 1020  
Asp Gly Ile Leu Glu Ser Asp Leu Ile Ile Pro Val Thr Leu Ala Gly  
1025 1030 1035 1040  
Pro Arg Ser Asn His Asn Arg Arg Pro Gly Tyr Lys Thr Gln Asn Gln  
1045 1050 1055  
Gly Pro Trp Asp Glu Gly Arg Val Glu Ile Asp Phe Asp Tyr Cys Pro  
1060 1065 1070  
Gly Thr Thr Val Thr Leu Ser Glu Ser Cys Gly His Arg Gly Pro Ala  
1075 1080 1085  
Thr Arg Thr Thr Thr Glu Ser Gly Lys Leu Ile Thr Asp Trp Cys Cys  
1090 1095 1100  
Arg Ser Cys Thr Leu Pro Pro Leu Arg Tyr Gln Thr Asp Ser Gly Cys  
1105 1110 1115 1120  
Trp Tyr Gly Met Glu Ile Arg Pro Gln Arg His Asp Glu Lys Thr Leu  
1125 1130 1135  
Val Gln Ser Gln Val Asn Ala Tyr Asn Ala Asp Met Ile Asp Pro Phe  
1140 1145 1150  
Gln Leu Gly Leu Leu Val Val Phe Leu Ala Thr Gln Glu Val Leu Arg  
1155 1160 1165  
Lys Arg Trp Thr Ala Lys Ile Ser Met Pro Ala Ile Leu Ile Ala Leu  
1170 1175 1180  
Leu Val Leu Val Phe Gly Gly Ile Thr Tyr Thr Asp Val Leu Arg Tyr  
1185 1190 1195 1200  
Val Ile Leu Val Gly Ala Ala Phe Ala Glu Ser Asn Ser Gly Gly Asp  
1205 1210 1215  
Val Val His Leu Ala Leu Met Ala Thr Phe Lys Ile Gln Pro Val Phe  
1220 1225 1230  
Met Val Ala Ser Phe Leu Lys Ala Arg Trp Thr Asn Gln Glu Asn Ile  
1235 1240 1245  
Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala  
1250 1255 1260  
Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala  
1265 1270 1275 1280  
Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn  
1285 1290 1295  
Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Gly Leu Arg Cys Leu  
1300 1305 1310  
Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser  
1315 1320 1325  
Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser  
1330 1335 1340  
Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile  
1345 1350 1355 1360  
Leu Ala Ala Gly Leu Ile Thr Cys Asp Pro Asn Arg Lys Arg Gly Trp  
1365 1370 1375  
Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val  
1380 1385 1390  
Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr  
1395 1400 1405  
Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr  
1410 1415 1420  
Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala  
1425 1430 1435 1440  
Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp



1445										1450					1455				
Gly	Asn	Phe	Gln	Leu	Met	Asn	Asp	Pro	Gly	Ala	Pro	Trp	Lys	Ile	Trp				
1460										1465					1470				
Met	Leu	Arg	Met	Val	Cys	Leu	Ala	Ile	Ser	Ala	Tyr	Thr	Pro	Trp	Ala				
1475										1480					1485				
Ile	Leu	Pro	Ser	Val	Val	Gly	Phe	Trp	Ile	Thr	Leu	Gln	Tyr	Thr	Lys				
1490										1495					1500				
Arg	Gly	Gly	Val	Leu	Trp	Asp	Thr	Pro	Ser	Pro	Lys	Glu	Tyr	Lys	Lys				
1505										1510					1515				
Gly	Asp	Thr	Thr	Thr	Gly	Val	Tyr	Arg	Ile	Met	Thr	Arg	Gly	Leu	Leu				
1525										1530					1535				
Gly	Ser	Tyr	Gln	Ala	Gly	Ala	Gly	Val	Met	Val	Glu	Gly	Val	Phe	His				
1540										1545					1550				
Thr	Leu	Trp	His	Thr	Thr	Lys	Gly	Ala	Ala	Leu	Met	Ser	Gly	Glu	Gly				
1555										1560					1565				
Arg	Leu	Asp	Pro	Tyr	Trp	Gly	Ser	Val	Lys	Glu	Asp	Arg	Leu	Cys	Tyr				
1570										1575					1580				
Gly	Gly	Pro	Trp	Lys	Leu	Gln	His	Lys	Trp	Asn	Gly	Gln	Asp	Glu	Val				
1585										1590					1595				
Gln	Met	Ile	Val	Val	Glu	Pro	Gly	Lys	Asn	Val	Lys	Asn	Val	Gln	Thr				
1605										1610					1615				
Lys	Pro	Gly	Val	Phe	Lys	Thr	Pro	Glu	Gly	Glu	Ile	Gly	Ala	Val	Thr				
1620										1625					1630				
Leu	Asp	Phe	Pro	Thr	Gly	Thr	Ser	Gly	Ser	Pro	Ile	Val	Asp	Lys	Asn				
1635										1640					1645				
Gly	Asp	Val	Ile	Gly	Leu	Tyr	Gly	Asn	Gly	Val	Ile	Met	Pro	Asn	Gly				
1650										1655					1660				
Ser	Tyr	Ile	Ser	Ala	Ile	Val	Gln	Gly	Glu	Arg	Met	Asp	Glu	Pro	Ile				
1665										1670					1675				
Pro	Ala	Gly	Phe	Glu	Pro	Glu	Met	Leu	Arg	Lys	Lys	Gln	Ile	Thr	Val				
1685										1690					1695				
Leu	Asp	Leu	His	Pro	Gly	Ala	Gly	Lys	Thr	Arg	Arg	Ile	Leu	Pro	Gln				
1700										1705					1710				
Ile	Ile	Lys	Glu	Ala	Ile	Asn	Arg	Arg	Leu	Arg	Thr	Ala	Val	Leu	Ala				
1715										1720					1725				
Pro	Thr	Arg	Val	Val	Ala	Ala	Glu	Met	Ala	Glu	Ala	Leu	Arg	Gly	Leu				
1730										1735					1740				
Pro	Ile	Arg	Tyr	Gln	Thr	Ser	Ala	Val	Pro	Arg	Glu	His	Asn	Gly	Asn				
1745										1750					1755				
Glu	Ile	Val	Asp	Val	Met	Cys	His	Ala	Thr	Leu	Thr	His	Arg	Leu	Met				
1765										1770					1775				
Ser	Pro	His	Arg	Val	Pro	Asn	Tyr	Asn	Leu	Phe	Val	Met	Asp	Glu	Ala				
1780										1785					1790				
His	Phe	Thr	Asp	Pro	Ala	Ser	Ile	Ala	Ala	Arg	Gly	Tyr	Ile	Ser	Thr				
1795										1800					1805				
Lys	Val	Glu	Leu	Gly	Glu	Ala	Ala	Ala	Ile	Phe	Met	Thr	Ala	Thr	Pro				
1810										1815					1820				
Pro	Gly	Thr	Ser	Asp	Pro	Phe	Pro	Glu	Ser	Asn	Ser	Pro	Ile	Ser	Asp				
1825										1830					1835				
Leu	Gln	Thr	Glu	Ile	Pro	Asp	Arg	Ala	Trp	Asn	Ser	Gly	Tyr	Glu	Trp				
1845										1850					1855				
Ile	Thr	Glu	Tyr	Thr	Gly	Lys	Thr	Val	Trp	Phe	Val	Pro	Ser	Val	Lys				
1860										1865					1870				
Met	Gly	Asn	Glu	Ile	Ala	Leu	Cys	Leu	Gln	Arg	Ala	Gly	Lys	Lys	Val				
1875										1880					1885				
Val	Gln	Leu	Asn	Arg															

Asn	Asp	Asp	Trp	Asp	Phe	Val	Ile	Thr	Thr	Asp	Ile	Ser	Glu	Met	Gly	1905	1910	1915	1920
Ala	Asn	Phe	Lys	Ala	Ser	Arg	Val	Ile	Asp	Ser	Arg	Lys	Ser	Val	Lys	1925	1930		1935
Pro	Thr	Ile	Ile	Thr	Glu	Gly	Glu	Gly	Arg	Val	Ile	Leu	Gly	Glu	Pro	1940	1945		1950
Ser	Ala	Val	Thr	Ala	Ala	Ser	Ala	Ala	Gln	Arg	Arg	Gly	Arg	Ile	Gly	1955	1960		1965
Arg	Asn	Pro	Ser	Gln	Val	Gly	Asp	Glu	Tyr	Cys	Tyr	Gly	Gly	His	Thr	1970	1975		1980
Asn	Glu	Asp	Asp	Ser	Asn	Phe	Ala	His	Trp	Thr	Glu	Ala	Arg	Ile	Met	1985	1990		2000
Leu	Asp	Asn	Ile	Asn	Met	Pro	Asn	Gly	Leu	Ile	Ala	Gln	Phe	Tyr	Gln	2005	2010		2015
Pro	Glu	Arg	Glu	Lys	Val	Tyr	Thr	Met	Asp	Gly	Glu	Tyr	Arg	Leu	Arg	2020	2025		2030
Gly	Glu	Glu	Arg	Lys	Asn	Phe	Leu	Glu	Leu	Leu	Arg	Thr	Ala	Asp	Leu	2035	2040		2045
Pro	Val	Trp	Leu	Ala	Tyr	Lys	Val	Ala	Ala	Ala	Gly	Val	Ser	Tyr	His	2050	2055		2060
Asp	Arg	Arg	Trp	Cys	Phe	Asp	Gly	Pro	Arg	Thr	Asn	Thr	Ile	Leu	Glu	2065	2070		2080
Asp	Asn	Asn	Glu	Val	Glu	Val	Ile	Thr	Lys	Leu	Gly	Glu	Arg	Lys	Ile	2085	2090		2095
Leu	Arg	Pro	Arg	Trp	Ile	Asp	Ala	Arg	Val	Tyr	Ser	Asp	His	Gln	Ala	2100	2105		2110
Leu	Lys	Ala	Phe	Lys	Asp	Phe	Ala	Ser	Gly	Lys	Arg	Ser	Gln	Ile	Gly	2115	2120		2125
Leu	Ile	Glu	Val	Leu	Gly	Lys	Met	Pro	Glu	His	Phe	Met	Gly	Lys	Thr	2130	2135		2140
Trp	Glu	Ala	Leu	Asp	Thr	Met	Tyr	Val	Val	Ala	Thr	Ala	Glu	Lys	Gly	2145	2150		2160
Gly	Arg	Ala	His	Arg	Met	Ala	Leu	Glu	Glu	Leu	Pro	Asp	Ala	Leu	Gln	2165	2170		2175
Thr	Ile	Ala	Leu	Ile	Ala	Leu	Leu	Ser	Val	Met	Thr	Met	Gly	Val	Phe	2180	2185		2190
Phe	Leu	Leu	Met	Gln	Arg	Lys	Gly	Ile	Gly	Lys	Ile	Gly	Leu	Gly	Gly	2195	2200		2205
Ala	Val	Leu	Gly	Val	Ala	Thr	Phe	Phe	Cys	Trp	Met	Ala	Glu	Val	Pro	2210	2215		2220
Gly	Thr	Lys	Ile	Ala	Gly	Met	Leu	Leu	Leu	Ser	Leu	Leu	Leu	Met	Ile	2225	2230		2240
Val	Leu	Ile	Pro	Glu	Pro	Glu	Lys	Gln	Arg	Ser	Gln	Thr	Asp	Asn	Gln	2245	2250		2255
Leu	Ala	Val	Phe	Leu	Ile	Cys	Val	Met	Thr	Leu	Val	Ser	Ala	Val	Ala	2260	2265		2270
Ala	Asn	Glu	Met	Gly	Trp	Leu	Asp	Lys	Thr	Lys	Ser	Asp	Ile	Ser	Ser	2275	2280		2285
Leu	Phe	Gly	Gln	Arg	Ile	Glu	Val	Lys	Glu	Asn	Phe	Ser	Met	Gly	Glu	2290	2295		2300
Phe	Leu	Leu	Asp	Leu	Arg	Pro	Ala	Thr	Ala	Trp	Ser	Leu	Tyr	Ala	Val	2305	2310		2320
Thr	Thr	Ala	Val	Leu	Thr	Pro	Leu	Leu	Lys	His	Leu	Ile	Thr	Ser	Asp	2325	2330		2335
Tyr	Ile	Asn	Thr	Ser	Leu	Thr	Ser	Ile	Asn	Val	Gln	Ala	Ser	Ala	Leu	2340	2345		2350
Phe	Thr	Leu	Ala	Arg	Gly	Phe	Pro	Phe	Val	Asp	Val	Gly	Val	Ser	Ala				

2355	2360	2365
Leu Leu Leu Ala Ala Gly Cys Trp Gly Gln Val Thr Leu Thr Val Thr		
2370	2375	2380
Val Thr Ala Ala Thr Leu Leu Phe Cys His Tyr Ala Tyr Met Val Pro		
2385	2390	2395
Gly Trp Gln Ala Glu Ala Met Arg Ser Ala Gln Arg Arg Thr Ala Ala		2400
2405	2410	2415
Gly Ile Met Lys Asn Ala Val Val Asp Gly Ile Val Ala Thr Asp Val		
2420	2425	2430
Pro Glu Leu Glu Arg Thr Thr Pro Ile Met Gln Lys Lys Val Gly Gln		
2435	2440	2445
Ile Met Leu Ile Leu Val Ser Leu Ala Ala Val Val Val Asn Pro Ser		
2450	2455	2460
Val Lys Thr Val Arg Glu Ala Gly Ile Leu Ile Thr Ala Ala Ala Val		
2465	2470	2475
Thr Leu Trp Glu Asn Gly Ala Ser Ser Val Trp Asn Ala Thr Thr Ala		2480
2485	2490	2495
Ile Gly Leu Cys His Ile Met Arg Gly Gly Trp Leu Ser Cys Leu Ser		
2500	2505	2510
Ile Thr Trp Thr Leu Ile Lys Asn Met Glu Lys Pro Gly Leu Lys Arg		
2515	2520	2525
Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu		
2530	2535	2540
Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile		
2545	2550	2555
Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn		2560
2565	2570	2575
Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp		
2580	2585	2590
Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu		
2595	2600	2605
Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg		
2610	2615	2620
Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu		
2625	2630	2635
Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser		
2645	2650	2655
Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu		
2660	2665	2670
Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg		
2675	2680	2685
Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro		
2690	2695	2700
Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile		
2705	2710	2715
Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg		
2725	2730	2735
Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg		
2740	2745	2750
Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu		
2755	2760	2765
Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu		
2770	2775	2780
Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu		
2785	2790	2795
Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg		2800
2805	2810	2815

Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr	2820	2825	2830
Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser	2835	2840	2845
Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr	2850	2855	2860
Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly	2865	2870	2875
Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro	2885	2890	2895
Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp	2900	2905	2910
Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu	2915	2920	2925
Phe Ile Arg Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu	2930	2935	2940
Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys	2945	2950	2955
Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu	2965	2970	2975
Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro	2980	2985	2990
Gly Glu Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Phe Met Trp	2995	3000	3005
Leu Gly Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu	3010	3015	3020
Asp His Trp Leu Gly Arg Lys Asn Ser Gly Gly Gly Val Glu Gly Leu	3025	3030	3035
Gly Leu Gln Lys Leu Gly Tyr Ile Leu Arg Glu Val Gly Thr Arg Pro	3045	3050	3055
Gly Gly Lys Ile Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile	3060	3065	3070
Thr Arg Ala Asp Leu Glu Asn Glu Ala Lys Val Leu Glu Leu Leu Asp	3075	3080	3085
Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg	3090	3095	3100
His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val	3105	3110	3115
Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val	3125	3130	3135
Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg	3140	3145	3150
Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu	3155	3160	3165
Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly	3170	3175	3180
Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val	3185	3190	3195
Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala	3205	3210	3215
Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly	3220	3225	3230
Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu	3235	3240	3245
Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln	3250	3255	3260
Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn			

3265		3270		3275		3280
Val Arg Asp Thr	Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu					
	3285		3290			3295
Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile						
	3300		3305			3310
Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp						
	3315		3320			3325
Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu						
	3330		3335			3340
Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys						
3345		3350		3355		3360
Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu						
	3365		3370			3375
Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp						
	3380		3385			3390
Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly						
	3395		3400			3405
Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp						
	3410		3415			3420
Thr Thr Leu Val Glu Asp Thr Val Leu						
3425		3430				

**West Nile Virus - AF404757**

Met Ser Lys Lys Pro Gly Gly Pro Gly Lys Ser Arg Ala Val Asn Met		
1	5	10
Leu Lys Arg Gly Met Pro Arg Val Leu Ser Leu Ile Gly Leu Lys Arg		
	20	25
Ala Met Leu Ser Leu Ile Asp Gly Lys Gly Pro Ile Arg Phe Val Leu		
	35	40
Ala Leu Leu Ala Phe Phe Arg Phe Thr Ala Ile Ala Pro Thr Arg Ala		
	50	55
Val Leu Asp Arg Trp Arg Gly Val Asn Lys Gln Thr Ala Met Lys His		
65	70	75
Leu Leu Ser Phe Lys Lys Glu Leu Gly Thr Leu Thr Ser Ala Ile Asn		
	85	90
Arg Arg Ser Ser Lys Gln Lys Lys Arg Gly Gly Lys Thr Gly Ile Ala		
	100	105
Val Met Ile Gly Leu Ile Ala Ser Val Gly Ala Val Thr Leu Ser Asn		
	115	120
Phe Gln Gly Lys Val Met Met Thr Val Asn Ala Thr Asp Val Thr Asp		
	130	135
Val Ile Thr Ile Pro Thr Ala Ala Gly Lys Asn Leu Cys Ile Val Arg		
145	150	155
Ala Met Asp Val Gly Tyr Met Cys Asp Asp Thr Ile Thr Tyr Glu Cys		
	165	170
Pro Val Leu Ser Ala Gly Asn Asp Pro Glu Asp Ile Asp Cys Trp Cys		
	180	185
Thr Lys Ser Ala Val Tyr Val Arg Tyr Gly Arg Cys Thr Lys Thr Arg		
	195	200
His Ser Arg Arg Ser Arg Arg Ser Leu Thr Val Gln Thr His Gly Glu		
	210	215
Ser Thr Leu Ala Asn Lys Lys Gly Ala Trp Met Asp Ser Thr Lys Ala		
225	230	235
Thr Arg Tyr Leu Val Lys Thr Glu Ser Trp Ile Leu Arg Asn Pro Gly		
	245	250
Tyr Ala Leu Val Ala Ala Val Ile Gly Trp Met Leu Gly Ser Asn Thr		
		255

[illegible]

Val	Gly	Gly	Val	Phe	Thr	Ser	Val	Gly	<b>LYS</b>	Ala	Val	His	Gln	Val	Phe
				725					<b>730</b>					735	
Gly	Gly	Ala	Phe	Arg	Ser	Leu	Phe	Gly	Gly	Met	Ser	Trp	Ile	Thr	Gln
			740					745					750		
Gly	Leu	Leu	Gly	Ala	Leu	Leu	Leu	Trp	Met	Gly	Ile	Asn	Ala	Arg	Asp
		755					760					765			
Arg	Ser	Ile	Ala	Leu	Thr	Phe	Leu	Ala	Val	Gly	Gly	Val	Leu	Leu	Phe
	770				775						780				
Leu	Ser	Val	Asn	Val	His	Ala	Asp	Thr	Gly	Cys	Ala	Ile	Asp	Ile	Ser
785					790					795					800
Arg	Gln	Glu	Leu	Arg	Cys	Gly	Ser	Gly	Val	Phe	Ile	His	Asn	Asp	Val
			805						810					815	
Glu	Ala	Trp	Met	Asp	Arg	Tyr	Lys	Tyr	Tyr	Pro	Glu	Thr	Pro	Gln	Gly
			820					825					830		
Leu	Ala	Lys	Ile	Ile	Gln	Lys	Ala	His	Lys	Glu	Gly	Val	Cys	Gly	Leu
		835					840					845			
Arg	Ser	Val	Ser	Arg	Leu	Glu	His	Gln	Met	Trp	Glu	Ser	Val	Lys	Asp
	850					855					860				
Glu	Leu	Asn	Thr	Leu	Leu	Lys	Glu	Asn	Gly	Val	Asp	Leu	Ser	Val	Val
865					870					875					880
Val	Glu	Lys	Gln	Glu	Gly	Met	Tyr	Lys	Ser	Ala	Pro	Lys	Arg	Leu	Thr
			885						890					895	
Ala	Thr	Thr	Glu	Lys	Leu	Glu	Ile	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
			900					905					910		
Ile	Leu	Phe	Ala	Pro	Glu	Leu	Ala	Asn	Asn	Thr	Phe	Val	Val	Asp	Gly
		915					920					925			
Pro	Glu	Thr	Lys	Glu	Cys	Pro	Thr	Gln	Asn	Arg	Ala	Trp	Asn	Ser	Leu
	930					935					940				
Glu	Val	Glu	Asp	Phe	Gly	Phe	Gly	Leu	Thr	Ser	Thr	Arg	Met	Phe	Leu
945					950					955					960
Lys	Val	Arg	Glu	Ser	Asn	Thr	Thr	Glu	Cys	Asp	Ser	Lys	Ile	Ile	Gly
			965						970					975	
Thr	Ala	Val	Lys	Asn	Asn	Leu	Ala	Ile	His	Ser	Asp	Leu	Ser	Tyr	Trp
			980					985					990		
Ile	Glu	Ser	Arg	Leu	Asn	Asp	Thr	Trp	Lys	Leu	Glu	Arg	Ala	Val	Leu
	995						1000					1005			
Gly	Glu	Val	Lys	Ser	Cys	Thr	Trp	Pro	Glu	Thr	His	Thr	Leu	Trp	Gly
	1010					1015					1020				
Asp	Gly	Ile	Leu	Glu	Ser	Asp	Leu	Ile	Ile	Pro	Val	Thr	Leu	Ala	Gly
1025					1030					1035					1040
Pro	Arg	Ser	Asn	His	Asn	Arg	Arg	Pro	Gly	Tyr	Lys	Thr	Gln	Asn	Gln
			1045						1050					1055	
Gly	Pro	Trp	Asp	Glu	Gly	Arg	Val	Glu	Ile	Asp	Phe	Asp	Tyr	Cys	Pro
		1060						1065					1070		
Gly	Thr	Thr	Val	Thr	Leu	Ser	Glu	Ser	Cys	Gly	His	Arg	Gly	Pro	Ala
		1075					1080					1085			
Thr	Arg	Thr	Thr	Thr	Glu	Ser	Gly	Lys	Leu	Ile	Thr	Asp	Trp	Cys	Cys
	1090					1095						1100			
Arg	Ser	Cys	Thr	Leu	Pro	Pro	Leu	Arg	Tyr	Gln	Thr	Asp	Ser	Gly	Cys
1105					1110					1115					1120
Trp	Tyr	Gly	Met	Glu	Ile	Arg	Pro	Gln	Arg	His	Asp	Glu	Lys	Thr	Leu
			1125						1130					1135	
Val	Gln	Ser	Gln	Val	Asn	Ala	Tyr	Asn	Ala	Asp	Met	Ile	Asp	Pro	Phe
			1140					1145					1150		
Gln	Leu	Gly	Leu	Leu	Val	Val	Phe	Leu	Ala	Thr	Gln	Glu	Val	Leu	Arg
		1155					1160					1165			
Lys	Arg	Trp	Thr	Ala	Lys	Ile	Ser	Met	Pro	Ala	Ile	Leu	Ile	Ala	Leu

1170	1175	1180
Leu Val Leu Val Phe Gly Gly Ile Thr Tyr Thr Asp Val Leu Arg Tyr		
1185	1190	1195
Val Ile Leu Val Gly Ala Ala Phe Ala Glu Ser Asn Ser Gly Gly Asp		1200
	1205	1210
Val Val His Leu Ala Leu Met Ala Thr Phe Lys Ile Gln Pro Val Phe		1215
	1220	1225
Met Val Ala Ser Phe Leu Lys Ala Arg Trp Thr Asn Gln Glu Asn Ile		1230
	1235	1240
Leu Leu Met Leu Ala Ala Val Phe Phe Gln Met Ala Tyr His Asp Ala		1245
	1250	1255
Arg Gln Ile Leu Leu Trp Glu Ile Pro Asp Val Leu Asn Ser Leu Ala		1260
1265	1270	1275
Val Ala Trp Met Ile Leu Arg Ala Ile Thr Phe Thr Thr Thr Ser Asn		1280
	1285	1290
Val Val Val Pro Leu Leu Ala Leu Leu Thr Pro Gly Leu Arg Cys Leu		1295
	1300	1305
Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu Met Val Gly Ile Gly Ser		1310
	1315	1320
Leu Ile Arg Glu Lys Arg Ser Ala Ala Ala Lys Lys Lys Gly Ala Ser		1325
	1330	1335
Leu Leu Cys Leu Ala Leu Ala Ser Thr Gly Leu Phe Asn Pro Met Ile		1340
1345	1350	1355
Leu Ala Ala Gly Leu Ile Ala Cys Asp Pro Asn Arg Lys Arg Gly Trp		1360
	1365	1370
Pro Ala Thr Glu Val Met Thr Ala Val Gly Leu Met Phe Ala Ile Val		1375
	1380	1385
Gly Gly Leu Ala Glu Leu Asp Ile Asp Ser Met Ala Ile Pro Met Thr		1390
	1395	1400
Ile Ala Gly Leu Met Phe Ala Ala Phe Val Ile Ser Gly Lys Ser Thr		1405
	1410	1415
Asp Met Trp Ile Glu Arg Thr Ala Asp Ile Ser Trp Glu Ser Asp Ala		1420
1425	1430	1435
Glu Ile Thr Gly Ser Ser Glu Arg Val Asp Val Arg Leu Asp Asp Asp		1440
	1445	1450
Gly Asn Phe Gln Leu Met Asn Asp Pro Gly Ala Pro Trp Lys Ile Trp		1455
	1460	1465
Met Leu Arg Met Ala Cys Leu Ala Ile Ser Ala Tyr Thr Pro Trp Ala		1470
	1475	1480
Ile Leu Pro Ser Val Ile Gly Phe Trp Ile Thr Leu Gln Tyr Thr Lys		1485
	1490	1495
Arg Gly Gly Val Leu Trp Asp Thr Pro Ser Pro Lys Glu Tyr Lys Lys		1500
1505	1510	1515
Gly Asp Thr Thr Thr Gly Val Tyr Arg Ile Met Thr Arg Gly Leu Leu		1520
	1525	1530
Gly Ser Tyr Gln Ala Gly Ala Gly Val Met Val Glu Gly Val Phe His		1535
	1540	1545
Thr Leu Trp His Thr Thr Lys Gly Ala Ala Leu Met Ser Gly Glu Gly		1550
	1555	1560
Arg Leu Asp Pro Tyr Trp Gly Ser Val Lys Glu Asp Arg Leu Cys Tyr		1565
	1570	1575
Gly Gly Pro Trp Lys Leu Gln His Lys Trp Asn Gly Gln Asp Glu Val		1580
1585	1590	1595
Gln Met Ile Val Val Glu Pro Gly Lys Asn Val Lys Asn Val Gln Thr		1600
	1605	1610
Lys Pro Gly Val Phe Lys Thr Pro Glu Gly Glu Ile Gly Ala Val Thr		1615
	1620	1625
		1630



Leu Asp Phe Pro Thr Gly Thr Ser Gly Ser Pro Ile Val Asp Lys Asn  
 1635 1640 1645  
 Gly Asp Val Ile Gly Leu Tyr Gly Asn Gly Val Ile Met Pro Asn Gly  
 1650 1655 1660  
 Ser Tyr Ile Ser Ala Ile Val Gln Gly Glu Arg Met Asp Glu Pro Ile  
 1665 1670 1675 1680  
 Pro Ala Gly Phe Glu Pro Glu Met Leu Arg Lys Lys Gln Ile Thr Val  
 1685 1690 1695  
 Leu Asp Leu His Pro Gly Ala Gly Lys Thr Arg Arg Ile Leu Pro Gln  
 1700 1705 1710  
 Ile Ile Lys Glu Ala Ile Asn Arg Arg Leu Arg Thr Ala Val Leu Ala  
 1715 1720 1725  
 Pro Thr Arg Val Val Ala Ala Glu Met Ala Glu Ala Leu Arg Gly Leu  
 1730 1735 1740  
 Pro Ile Arg Tyr Gln Thr Ser Ala Val Thr Arg Glu His Asn Gly Asn  
 1745 1750 1755 1760  
 Glu Ile Val Asp Val Met Cys His Ala Thr Leu Thr His Arg Leu Met  
 1765 1770 1775  
 Ser Pro His Arg Val Pro Asn Tyr Asn Leu Phe Val Met Asp Glu Ala  
 1780 1785 1790  
 His Phe Thr Asp Pro Ala Ser Ile Ala Ala Arg Gly Tyr Ile Ser Thr  
 1795 1800 1805  
 Lys Val Glu Leu Gly Glu Ala Ala Ala Ile Phe Met Thr Ala Thr Pro  
 1810 1815 1820  
 Pro Gly Thr Ser Asp Pro Phe Pro Glu Ser Asn Ser Pro Ile Ser Asp  
 1825 1830 1835 1840  
 Leu Gln Thr Glu Ile Pro Asp Arg Ala Trp Asn Ser Gly Tyr Glu Trp  
 1845 1850 1855  
 Ile Thr Glu Tyr Ile Gly Lys Thr Val Trp Phe Val Pro Ser Val Lys  
 1860 1865 1870  
 Met Gly Asn Glu Ile Ala Leu Cys Leu Gln Arg Ala Gly Lys Lys Val  
 1875 1880 1885  
 Val Gln Leu Asn Arg Lys Ser Tyr Glu Thr Glu Tyr Pro Lys Cys Lys  
 1890 1895 1900  
 Asn Asp Asp Trp Asp Phe Val Ile Thr Thr Asp Ile Ser Glu Met Gly  
 1905 1910 1915 1920  
 Ala Asn Phe Lys Ala Ser Arg Val Ile Asp Ser Arg Lys Ser Val Lys  
 1925 1930 1935  
 Pro Thr Ile Ile Thr Glu Gly Glu Gly Arg Val Ile Leu Gly Glu Pro  
 1940 1945 1950  
 Ser Ala Val Thr Ala Ala Ser Ala Ala Gln Arg Arg Gly Arg Ile Gly  
 1955 1960 1965  
 Arg Asn Pro Ser Gln Val Gly Asp Glu Tyr Cys Tyr Gly Gly His Thr  
 1970 1975 1980  
 Asn Glu Asp Asp Ser Asn Phe Ala His Trp Thr Glu Ala Arg Ile Met  
 1985 1990 1995 2000  
 Leu Asp Asn Ile Asn Met Pro Asn Gly Leu Ile Ala Gln Phe Tyr Gln  
 2005 2010 2015  
 Pro Glu Arg Glu Lys Val Tyr Thr Met Asp Gly Glu Tyr Arg Leu Arg  
 2020 2025 2030  
 Gly Glu Glu Arg Lys Asn Phe Leu Glu Leu Leu Arg Thr Ala Asp Leu  
 2035 2040 2045  
 Pro Val Trp Leu Ala Tyr Lys Val Ala Ala Ala Gly Val Ser Tyr His  
 2050 2055 2060  
 Asp Arg Arg Trp Cys Phe Asp Gly Pro Arg Thr Asn Thr Ile Leu Glu  
 2065 2070 2075 2080  
 Asp Asn Asn Glu Val Glu Val Ile Thr Lys Leu Gly Glu Arg Lys Ile



Asn	Gln	Met	Thr	Lys	Glu	Glu	Phe	Thr	Arg	Tyr	Arg	Lys	Glu	Ala	Ile	
2545					2550				2555					2560		
Ile	Glu	Val	Asp	Arg	Ser	Ala	Ala	Lys	His	Ala	Arg	Lys	Glu	Gly	Asn	
			2565					2570						2575		
Val	Thr	Gly	Gly	His	Pro	Val	Ser	Arg	Gly	Thr	Ala	Lys	Leu	Arg	Trp	
		2580					2585						2590			
Leu	Val	Glu	Arg	Arg	Phe	Leu	Glu	Pro	Val	Gly	Lys	Val	Ile	Asp	Leu	
	2595					2600						2605				
Gly	Cys	Gly	Arg	Gly	Gly	Trp	Cys	Tyr	Tyr	Met	Ala	Thr	Gln	Lys	Arg	
2610					2615					2620						
Val	Gln	Glu	Val	Arg	Gly	Tyr	Thr	Lys	Gly	Gly	Pro	Gly	His	Glu	Glu	
2625				2630					2635					2640		
Pro	Gln	Leu	Val	Gln	Ser	Tyr	Gly	Trp	Asn	Ile	Val	Thr	Met	Lys	Ser	
			2645					2650					2655			
Gly	Val	Asp	Val	Phe	Tyr	Arg	Pro	Ser	Glu	Cys	Cys	Asp	Thr	Leu	Leu	
	2660						2665					2670				
Cys	Asp	Ile	Gly	Glu	Ser	Ser	Ser	Ser	Ala	Glu	Val	Glu	Glu	His	Arg	
	2675					2680				2685						
Thr	Ile	Arg	Val	Leu	Glu	Met	Val	Glu	Asp	Trp	Leu	His	Arg	Gly	Pro	
2690					2695					2700						
Arg	Glu	Phe	Cys	Val	Lys	Val	Leu	Cys	Pro	Tyr	Met	Pro	Lys	Val	Ile	
2705				2710					2715					2720		
Glu	Lys	Met	Glu	Leu	Leu	Gln	Arg	Arg	Tyr	Gly	Gly	Gly	Leu	Val	Arg	
		2725					2730						2735			
Asn	Pro	Leu	Ser	Arg	Asn	Ser	Thr	His	Glu	Met	Tyr	Trp	Val	Ser	Arg	
	2740					2745						2750				
Ala	Ser	Gly	Asn	Val	Val	His	Ser	Val	Asn	Met	Thr	Ser	Gln	Val	Leu	
	2755					2760					2765					
Leu	Gly	Arg	Met	Glu	Lys	Arg	Thr	Trp	Lys	Gly	Pro	Gln	Tyr	Glu	Glu	
2770					2775				2780							
Asp	Val	Asn	Leu	Gly	Ser	Gly	Thr	Arg	Ala	Val	Gly	Lys	Pro	Leu	Leu	
2785				2790					2795					2800		
Asn	Ser	Asp	Thr	Ser	Lys	Ile	Lys	Asn	Arg	Ile	Glu	Arg	Leu	Arg	Arg	
		2805						2810					2815			
Glu	Tyr	Ser	Ser	Thr	Trp	His	His	Asp	Glu	Asn	His	Pro	Tyr	Arg	Thr	
		2820					2825					2830				
Trp	Asn	Tyr	His	Gly	Ser	Tyr	Asp	Val	Lys	Pro	Thr	Gly	Ser	Ala	Ser	
	2835					2840					2845					
Ser	Leu	Val	Asn	Gly	Val	Val	Arg	Leu	Leu	Ser	Lys	Pro	Trp	Asp	Thr	
	2850				2855					2860						
Ile	Thr	Asn	Val	Thr	Thr	Met	Ala	Met	Thr	Asp	Thr	Thr	Pro	Phe	Gly	
2865				2870					2875					2880		
Gln	Gln	Arg	Val	Phe	Lys	Glu	Lys	Val	Asp	Thr	Lys	Ala	Pro	Glu	Pro	
		2885						2890					2895			
Pro	Glu	Gly	Val	Lys	Tyr	Val	Leu	Asn	Glu	Thr	Thr	Asn	Trp	Leu	Trp	
	2900						2905						2910			
Ala	Phe	Leu	Ala	Arg	Glu	Lys	Arg	Pro	Arg	Met	Cys	Ser	Arg	Glu	Glu	
	2915					2920					2925					
Phe	Ile	Arg	Lys	Val	Asn	Ser	Asn	Ala	Ala	Leu	Gly	Ala	Met	Phe	Glu	
	2930				2935					2940						
Glu	Gln	Asn	Gln	Trp	Arg	Ser	Ala	Arg	Glu	Ala	Val	Glu	Asp	Pro	Lys	
2945				2950					2955					2960		
Phe	Trp	Glu	Met	Val	Asp	Glu	Glu	Arg	Glu	Ala	His	Leu	Arg	Gly	Glu	
		2965					2970					2975				
Cys	His	Thr	Cys	Ile	Tyr	Asn	Met	Met	Gly	Lys	Arg	Glu	Lys	Lys	Pro	
	2980					2985						2990				
Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Phe	Met	Trp	

2995					3000					3005					
Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn	Glu
3010					3015					3020					
Asp	His	Trp	Leu	Gly	Arg	Lys	Asn	Ser	Gly	Gly	Gly	Val	Glu	Gly	Leu
3025					3030					3035					3040
Gly	Leu	Gln	Lys	Leu	Gly	Tyr	Ile	Leu	Arg	Glu	Val	Gly	Thr	Arg	Pro
				3045					3050					3055	
Gly	Gly	Lys	Ile	Tyr	Ala	Asp	Asp	Thr	Ala	Gly	Trp	Asp	Thr	Arg	Ile
			3060					3065					3070		
Thr	Arg	Ala	Asp	Leu	Glu	Asn	Glu	Ala	Lys	Val	Leu	Glu	Leu	Leu	Asp
			3075					3080					3085		
Gly	Glu	His	Arg	Arg	Leu	Ala	Arg	Ala	Ile	Ile	Glu	Leu	Thr	Tyr	Arg
			3090				3095					3100			
His	Lys	Val	Val	Lys	Val	Met	Arg	Pro	Ala	Ala	Asp	Gly	Arg	Thr	Val
3105						3110					3115				3120
Met	Asp	Val	Ile	Ser	Arg	Glu	Asp	Gln	Arg	Gly	Ser	Gly	Gln	Val	Val
				3125					3130					3135	
Thr	Tyr	Ala	Leu	Asn	Thr	Phe	Thr	Asn	Leu	Ala	Val	Gln	Leu	Val	Arg
			3140					3145					3150		
Met	Met	Glu	Gly	Glu	Gly	Val	Ile	Gly	Pro	Asp	Asp	Val	Glu	Lys	Leu
			3155				3160					3165			
Thr	Lys	Gly	Lys	Gly	Pro	Lys	Val	Arg	Thr	Trp	Leu	Phe	Glu	Asn	Gly
			3170				3175					3180			
Glu	Glu	Arg	Leu	Ser	Arg	Met	Ala	Val	Ser	Gly	Asp	Asp	Cys	Val	Val
3185						3190					3195				3200
Lys	Pro	Leu	Asp	Asp	Arg	Phe	Ala	Thr	Ser	Leu	His	Phe	Leu	Asn	Ala
				3205					3210					3215	
Met	Ser	Lys	Val	Arg	Lys	Asp	Ile	Gln	Glu	Trp	Lys	Pro	Ser	Thr	Gly
			3220					3225					3230		
Trp	Tyr	Asp	Trp	Gln	Gln	Val	Pro	Phe	Cys	Ser	Asn	His	Phe	Thr	Glu
			3235				3240						3245		
Leu	Ile	Met	Lys	Asp	Gly	Arg	Thr	Leu	Val	Val	Pro	Cys	Arg	Gly	Gln
			3250				3255					3260			
Asp	Glu	Leu	Val	Gly	Arg	Ala	Arg	Ile	Ser	Pro	Gly	Ala	Gly	Trp	Asn
3265						3270					3275				3280
Val	Arg	Asp	Thr	Ala	Cys	Leu	Ala	Lys	Ser	Tyr	Ala	Gln	Met	Trp	Leu
				3285					3290					3295	
Leu	Leu	Tyr	Phe	His	Arg	Arg	Asp	Leu	Arg	Leu	Met	Ala	Asn	Ala	Ile
			3300					3305					3310		
Cys	Ser	Ala	Val	Pro	Val	Asn	Trp	Val	Pro	Thr	Gly	Arg	Thr	Thr	Trp
			3315				3320					3325			
Ser	Ile	His	Ala	Gly	Gly	Glu	Trp	Met	Thr	Thr	Glu	Asp	Met	Leu	Glu
			3330				3335					3340			
Val	Trp	Asn	Arg	Val	Trp	Ile	Glu	Glu	Asn	Glu	Trp	Met	Glu	Asp	Lys
3345						3350					3355				3360
Thr	Pro	Val	Glu	Lys	Trp	Ser	Asp	Val	Pro	Tyr	Ser	Gly	Lys	Arg	Glu
				3365					3370					3375	
Asp	Ile	Trp	Cys	Gly	Ser	Leu	Ile	Gly	Thr	Arg	Ala	Arg	Ala	Thr	Trp
			3380					3385					3390		
Ala	Glu	Asn	Ile	Gln	Val	Ala	Ile	Asn	Gln	Val	Arg	Ala	Ile	Ile	Gly
			3395				3400					3405			
Asp	Glu	Lys	Tyr	Val	Asp	Tyr	Met	Ser	Ser	Leu	Lys	Arg	Tyr	Glu	Asp
			3410				3415					3420			
Thr	Thr	Leu	Val	Glu	Asp	Thr	Val	Leu							
3425						3430									